PERSONNEL

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A PSYCHOLOGIST LOOKS AT JOB EVALUATION

By MORRIS S. VITELES

So fundamental is job evaluation becoming in industrial relations procedures, and so profound an influence is it bound to have upon industrial relations in the future, that we may now well scrutinize the rapid progress of recent years and the methods that appear to be coming into general practice. In this article Dr. Morris S. Viteles,* the well-known industrial psychologist of the University of Pennsylvania and the Philadelphia Electric Company, considers the various types of job evaluation programs in the light of psychological principles and experience. His analysis is constructively critical, and every executive concerned with this aspect of industrial relations will find food for thought in his conclusions.

DURING recent years there has developed an increasing emphasis upon job evaluation as a basic feature of the industrial relations program. Because of the vital significance of wage rates to both employers and employees, its use in pricing the job represents a particularly important application of job evaluation. However, job evaluation takes on additional significance because of its usefulness in facilitating transfer and promotion on a rational basis; in eliminating duplication of activities; in co-ordinating interdepartmental activities; in preventing inequalities in payments for similar work, and in serving the interests of good management and of satisfactory employer-employee relations in many other ways.[1]

THE NEED FOR APPRAISING JOB EVALUATION PROCEDURES

Since job evaluation occupies such an important place in the industrial relations program, it becomes particularly necessary to assay the merits and demerits of job evaluation procedures. A consideration of these leads to the conclusion that beneath the superficial orderliness of job evaluation techniques and findings there is much that smacks of chaos. This results largely from the neglect of a few fundamental psychological principles which can be easily applied to convert what is now essentially a trial and error approach into a rational, logical and scientific system of analysis.

This statement is not intended to cast discredit upon job evaluation as a device for determining the worth of jobs and as a basis for pricing

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[1] J. E. Walters, "Job Evaluation," *Mechanical Engineering*, December, 1938, p. 921.

them in an orderly and systematic way. It does not foolishly imply, in the face of much evidence to the contrary, that job evaluation cannot flourish, and even be useful, without the benefit of the experimental and logical techniques of the science of psychology. Nevertheless, there is real need for supplementing the more or less haphazard and roughly sketched observations of current job evaluation programs with observations gathered under more controlled conditions and described in more meaningful terms. Having succeeded in obtaining a rough sketch of the nature of jobs by the empirical techniques which have so far been applied, it seems fitting to seek an even better and more exact knowledge through the application of such psychological principles as are pertinent.

THE "LAW OF PARSIMONY" IN JOB EVALUATION

For the purpose of this discussion, it seems unnecessary to describe in detail the step-by-step procedures used in appraising and classifying jobs by the application of *ranking* (grading) and *rating* (point-scale) techniques.[2] However, as he reviews these procedures, the psychologist is first impressed by the wide difference of opinion concerning the number of factors considered necessary for the complete appraisal of the job by the *rating* method. The number varies from as few as 3 to as many as 50. The general tendency seems to favor many rather than few factors, in direct violation of the "law of parsimony" which should find a place in this as it does in other fields of analysis.

In practical terms, as Burk of The Atlantic Refining Company suggests, the use of a large number of factors complicates the application of a job evaluation plan by making it necessary to draw distinctions so fine that it becomes difficult for workers and operating executives to grasp the differences involved.[3] The findings of the psychological laboratory support the judgment of the practical job analyst who insists upon reducing the number of factors to be appraised to a minimum consistent with the adequate differentiation of jobs. The author hazards the opinion that the total number should probably never be greater than 10 and can in most instances profitably be limited to 5.

THE IDENTIFICATION OF "FACTORS" FOR RATING JOBS

Not only is the number of factors used in job analysis excessive, but there is wide diversity of opinion with respect to the identity of the factors

[2] For a description of job evaluation procedures and a discussion of wage and salary standardization see: J. O. Hopwood, *Salary, Wages and Labor Relations*, The Ronald Press, New York, 1937; J. W. Riegel, *Salary Determination*, Bureau of Industrial Relations *Report No. 2*, University of Michigan, Ann Arbor, 1940; C. C. Balderston, *Wage Setting Based on Job Analysis and Evaluation*, Industrial Relations Counselors, New York, 1940.

[3] S. L. H. Burk. "A Case History in Salary and Wage Administration," PERSONNEL, February, 1939, p. 106.

considered necessary for the appraisal of the job. According to one plan, "all the various factors which make one job more or less difficult and important than another may be grouped under 3 general headings, namely, the (1) *complexity or difficulty group* (subdivided into *mental effort, skill,* and *physical effort*); (2) *responsibility involved in the job*; (3) *working conditions surrounding the job.*[4] In another plan,[5] *skill, responsibility* and *application* are rated, while in a third plan[6] *mental effort, skill* or *experience, physical requirements, job conditions,* and *responsibility* are used in determining the worth of the job and as a basis for establishing a fair wage.

Even when identical terms are used, the meanings assigned to them are far from alike. "After consulting many authorities," writes one job analyst, "and checking with numerous superintendents, we arrived at the conclusion that *skill* could best be defined as *'learning-time.'* By learning-time we mean the total time required on previous jobs plus the time required on the job in question in order that the employee can perform the work in an expeditious manner.[7]

In contrast with this pleasing simplicity is the insistence of another analyst[8] that for the appraisal of *skill* there must be considered *tools and equipment, methods of work, material, judgment, tact or poise,* and *manner of speech,* while, according to another,[9] *skill* reflects *education, training, analytical ability, initiative,* including such matters as *ingenuity, resourcefulness, vision, aggressiveness,* and must be related also to *personnel requirements* appearing in *contacts with public, contacts with associates, presenting facts* and in *tact* and *cooperativeness.*

In some instances no effort is made to define or describe the factors employed as the basis for job evaluation. Few job analysts seem to realize that adequate definition of a term is not achieved merely by listing several synonyms, but only by describing in easily understood phrases concrete situations in which the factor operates. Of course, exceptions to this unfortunate tendency are to be found. Among these are the definitions employed in the job evaluation program of the National Electrical Manufacturers Association, which undertakes to indicate in terms of action pattern and of objective situations the exact meaning of various degrees of each factor.[10] So, for example, 5 points (representing the *1st degree of Responsibility for Material or Process*) are allowed for a job in which the "value of material which may be wasted, damaged or lost is small (maximum $10.00) or possibility of loss or damage is slight." For the job on which the "probable loss

[4] S. L. H. Burk, op. cit., p. 105.
[5] General Electric Company, *Salary Evaluation Plan,* Report No. 121, 1937, p. 3.
[6] From data furnished by Wisconsin Electric Power Company.
[7] D. W. Weed. "Job Evaluation," *Production Series 111,* American Management Association, 1938.
[8] From data furnished by Wisconsin Electric Power Co.
[9] General Electric Company. *Salary Evaluation Plan,* Report No. 121, 1937, p. 2.
[10] A. L. Kress. "How to Rate Jobs and Men," *Factory Management and Maintenance,* October, 1939, pp. 59-70.

due to damage or waste of material on product is limited, (maximum $250.00) or if the amount of possible loss is high, probability of occurrence is low" there is an allowance of 15 points (representing the *3rd degree of Responsibility for Material or Process).*

In the case of *initiative* and *ingenuity,* the job requiring "the ability to understand and follow simple instructions and the use of simple machines, gages, and fixtures, where no decisions are required, since the employee is told exactly what to do," is allowed 14 points (representing the *1st degree* of significance). In contrast, for an allowance of 42 points (representing the *3rd degree),* the job must call for "the ability to understand and plan sequence of operations, where standard methods of procedures are available and the making of general decisions by the employee, within the limitations of standard methods, is possible."

In spite of such exceptions, a survey of job evaluation programs leads to the conclusion that they can be considerably improved by a more careful choice of the factors to be considered, by limiting the number of these, and by providing concrete definitions of the situations or factors considered in appraising the job. There seems place for the application here of the general principle formulated for mental analysis by Kelley, who points out that "the essentials of valuable rubrics would seem to be (a) independence of each other, (b) paucity, (c) physical reality, (d) reliability, and (e) simplicity of definition.[11] The application of such criteria may do much to improve the techniques of job evaluation and to make possible a more effective standardization of the job evaluation program in industry.

SCIENTIFIC CONCEPTS OF MEASUREMENT IN JOB EVALUATION

Apart from the confusion of tongues characterizing job evaluation procedures is the tendency to disregard fundamental concepts of measurements. For example, there are wide variations among the various plans with respect (a) *to the total number of points assigned to each factor* and, (b) *to the relation between the minimum and the maximum scores on the rating scale.*

At first glance, it would seem to make no great difference whether a plan was based on a total range of 40 points or on one of 400 points for a particular factor, since the jobs are to be placed in relative positions along the scale. Such, for example, is the viewpoint of Walters, who, while stating that "the number of points assigned to evaluation seems to be somewhat arbitrary," also adds that this "appears to make but little difference in the final result within the company," although making it "difficult to

[11] P. L. Kelley. *Essentials of Mental Life,* Harvard University Press, Cambridge, 1935, p. 101.

compare similar jobs in different companies by the comparison of assigned point values."[12]

As a matter of fact, even within a single company the total number of points used makes a good deal of difference in the attitude of the raters, and therefore in the results. The use of a large number of points encourages a refinement of judgment beyond that merited by the notably rough and unreliable estimates which are being translated into numerical concepts.

There seems to be a magic about numbers which leads many astray. Because it is possible to assign scores in a range, for example, of 200 points—with individual scores of 78 or 112 or 117 or 129—the job analyst may conclude that the judgments made are more accurate than those made when ratings are limited to a total range of 10 points. As a matter of fact, there is ample evidence from psychological experiments that few, if any, observers are capable of making complex differentiations (of the type involved in job evaluation by the rating method), to a degree of refinement beyond a range of 5 or 6 or perhaps at most 7 points on a scale.*

An illustration from the measurement of intelligence may be used to make clear what is involved here. In examining individual intelligence, the distribution of I.Q.'s is generally found to be between 50 and 150. However, no reputable psychologist will attach greater worth to an I.Q. of 96 than to one of 92, or a greater worth to one of 140 than to one of 130, even though he is dealing with objective measures instead of estimates. The most that he will do is to classify the individual as *feeble minded, borderline, low average, average, high average, superior, very superior,* on the basis of the I.Q. value.

In other words, the psychologist limits himself on the basis of observed results to a judgment of intelligence made on what is essentially a 7-point scale. But job analysts will devote considerable effort to deciding whether the *estimated* (not measured) intelligence requirements of a job should be valued at 100, or 103, or 105 points in a range, for example, of 300 points, and then proceed to attach real significance to such scores.

Increased reliability in job evaluation calls for a drastic reduction in the number of points assigned to each factor. Limiting the number of points, it is true, will tend to promote a clustering of final scores and to restrict the number of groups or grades of jobs. However, the final results

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[12] J. E. Walters, op. cit.

* Vernon recalls the period, perhaps in the "Gay-Nineties," when "giving marks out of 20 to one's friends for beauty, humor, etc., used to be a popular parlour game. We know now, however," he adds, "that the average rater cannot properly discriminate twenty grades of a trait. Judgments in terms of percentages have disappeared for the same reason. As already described, the best results are obtained when the trait is divided in 5 or 7 steps or grades. A smaller number than this may be justified (4, 3 or 2) when an analytic rating scale is used; when the raters are numerous, or when they are insufficiently interested in the rating or insufficiently trained to make finer discriminations." (P. E. Vernon, "The Assessment of Psychological Qualities by Verbal Methods," Industrial Health Research Board, No. 83, London, 1938, p. 45.)

will tend to be more exact, because they are the outcome of a logical approach based upon the recognition that the results of any summation cannot possibly be more accurate than the most inaccurate measurement taken and used in the formula.

In the practical application of the point scale method, dividing a scale by spotting 5 or 6 points in degrees, as has been done in the plan of the National Electrical Manufacturers Association, helps to overcome the tendency toward unwarranted and excessive refinement. The better procedure is to recognize from the outset the limitations of human discrimination by avoiding the use of an excessively large number of points. In passing, it is perhaps well to note that the ranking method, especially with predetermined grades, tends to avoid this difficulty, because the very essence of it is to restrict to a relatively small number the groups or grades to which a job can be assigned.

Related to the matter of total number of points is that of the relation between minimum and maximum scores. Again there are wide variations among plans, some making the maximum score for a factor 10 or 15 or 20 times as high as the minimum, others limiting the difference to a ratio of 4 or 5. At first glance, there would seem good reason to use wide extremes because of the apparently wide difference between superiority and inferiority in any trait or skill. So, for example, the difference between the general intelligence required of the janitor and that demanded of a highly skilled worker or top supervisor appears to be well nigh limitless. Actually, in terms of numerical values, the general intelligence of the successful employee in such a "top job" is seldom found to be more than 3 times that of the most stupid worker in the least responsible job.

This ratio of 1 to 3 between the extremes of ability, and an even lower ratio of less than 1 to 2 for physical measurement, measures of motor function, production records, etc., recur with striking frequency in studies of individual differences in ability, skill and other human traits. Very seldom is the ratio greater than 5 to 1. Such facts further support the desirability of using for each factor employed in job evaluation a range of points in which the maximum is no more than 5 or 6. This relationship should hold whether the actual range in points for each trait is 10, 100, 500, 1500, or whatever it may be, although, as indicated in the earlier discussion, the author favors a narrow in preference to a wide range of score points. The extended ranges of measures with ratios of 1 to 10 and 1 to 20 employed in many job evaluation programs are entirely out of line with the realistic facts of human nature. Consideration of this situation may contribute to both the improvement and standardization of job evaluation programs.*

* In this connection it may be pointed out that the ratio between the lowest paid job and the highest paid job in the range covered by job evaluation and wage standardization plans is seldom greater than 5 or at most 6 to 1.

A SCIENTIFIC METHOD FOR MAKING JOB COMPARISONS

In addition to disregarding the fundamental concepts of measurement, the more general aspects of experimental methods, particularly as they are applied in psychological investigations, appear to be overlooked in job evaluation programs. For example, in using the ranking method, observers (including executives, job analysts, supervisors, etc.) are frequently asked to arrange a series of jobs in *order-of-merit* with respect to scope of activities or of worth to the company. The number to be ranked at any one time may include 10 or 20 or perhaps as many as 50 jobs.

Psychological investigations suggest that the consistency, or reliability, and the validity of grading or ranking can be considerably increased through the use of the *method of paired comparisons* where each job or each unit is successively compared with every other job or unit.

Applied, for example, to the grading of 20 jobs, this would mean that each observer would compare each job with every one of the other 19 jobs, making a judgment as to whether it was worth more or less than each of the remaining 19 jobs. He would start by comparing Job 1 with Jobs 2, 3, 4, 5, through to 20, respectively. He would then proceed to compare Job 2 with Jobs 1, 3, 4, 5, and so on, repeating the process until every job has been covered, entering on an appropriate form a *plus* sign whenever a job was considered to cover a wider scope of activities or to have more worth than the one with which it was compared, and a *minus* sign when the job was considered to have a less extended scope of activities or have less worth to the company than the one with which it was being compared. The number of plus marks assigned to each job would be counted to give a score for the job and the jobs would then be arranged in the order of scores.

This, of course, is a more laborious process than that of making a single order-of-merit judgment with respect to each job. On the other hand, the reliability and validity of the judgment obtained in this manner are so far superior to those obtained in the ordinary manner as to more than compensate for the extra time and effort involved.

THE CONTROVERSY BETWEEN "RATERS" AND "RANKERS"

The failure to apply experimental methods is particularly apparent when we consider the controversy between the "raters" and the "rankers," to which reference has already been made. According to the raters, the *rating method,* particularly as exemplified in the point scale "is more definite, more systematic, and more scientific. . . . It eliminates personal opinion and prejudices more than does the ranking system. . . . It is reasonable to expect that the sum of the judgment on the factors or elements of the job is more correct than the judgment of the job as a whole. . . . It

is easier to handle. . . . It tends to make the judgment factor in job evaluation less impersonal and more exact, because the job analyst can judge each factor more impersonally and more definitely than he can judge the job as a whole."[13]

The claim that the method is more scientific, easier to apply and makes for more accurate judgment also appears in the writings of those who prefer the *ranking method*.[14] Discussion of the relative merits of rating and ranking methods is still at the level of opinion. The author must frankly admit to a predilection for the relatively non-numerical form of evaluating whole jobs by the method of ranking. This is probably the outgrowth of his clinical background in the use of psychological tests and of rating scales, where the author has found that the numerical addition of test scores or of ratings cannot give a single figure which is in any sense descriptive of the personality of the individual examined or rated. In the same sense, points or dollars added together, representing a weighting of highly intangible factors, probably do not give as valid a measure of the position of the job on a scale as does an evaluation of the whole job, particularly when the method of paired comparison is used in ranking.

In terms of underlying psychological processes, this probably results from the fact that traits or activities undergo a change in character when these enter into combination with other traits or activities. For example, the capacity to meet people on an inside customer's job may turn out to be a trait very distinct from meeting people as a meter reader. Motor dexterity as applied on a routine assembly job may be something less in amount than that applied on an appliance repair job, but, on the other hand, it may be something very different from motor dexterity as used on the first job because the entire configuration of the activity affects the nature of the detailed activity.

Be that as it may, *this preference for the ranking method on the author's part is nothing more than an expression of personal liking. Whether one method is better or more effective than another in such an important activity as job evaluation should not be a matter of opinion, settled by controversial argumentation, but a matter of fact settled by experimental investigation.* This is particularly true when certain of the issues can be so easily settled by a direct comparison, under controlled conditions, of results obtained by the two methods. Such a comparison would give valuable information of the time taken to obtain such results, of the effort and money expended, and of the reliability, validity and usefulness of the final product. However, in spite of one or two essays in this direction, definitive experiments still remain to be made.

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[13] J. E. Walters, op. cit., p. 925.
[14] J. O. Hopwood, op. cit., pp. 66-70.

AVOIDING ERRORS IN JUDGMENTS IN JOB EVALUATION

Another aspect of experimental method which should perhaps be mentioned involves the importance of using an adequate number of trained observers, to pass judgment on the worth or value of a job. For example, experiments on the interview reveal wide disagreements among independent judgments by single observers, even when the latter are given an opportunity to interview an applicant at length.[15] On the other hand, studies show that pooled judgment by many interviewers tends to increase the reliability or consistency of the judgment and that the amount of increased reliability or consistency of judgment tends to be in direct proportion to the number of judges. In terms of job evaluation, such facts suggest the need of using a fairly large group of independent observers. In addition, it is important thoroughly to train those who make judgments in order to take advantage of the improvements in the consistency in judgment which do develop with adequate training. Moreover, there is evidence that the employment of fully informed and trained judges makes it possible to reduce the number of judgments necessary to give dependable estimates of the worth of jobs in the organization.

The author does not intend to convey the impression that job analysts are entirely unaware of these facts. For example, in describing job evaluation procedures employed by The Atlantic Refining Company, Burk points out that "at some point in any procedure having to do with the human factor, the ability to obtain results on a scientific basis ceases, and the judgment of a competent, unprejudiced group must be pooled to arrive at the final result. It is recognized that this result will be subject to all the errors of human judgment. The only way to reduce the number of such errors is to obtain as many opinions as is consistent with progress in the work."[16] However, the need for a more consistent adherence to this principle is indicated in a review of job evaluation programs.

THE "MENTAL SET" OF JOB ANALYSTS

Reference has been made to the importance of using trained judges. It is perhaps also necessary to point out the particular significance of the "mental set" of judges as they approach the task of ranking or rating jobs. For example, in the electric industry, meter reading was for many years looked upon as a blind-alley job, offering no opportunity for promotion and, therefore, requiring men of only low intelligence, few special aptitudes, and little skill, to fill the job satisfactorily. The present tendency to regard the meter reader's job as an introductory one, opening the way into transfer

[15] M. S. Viteles, *The Science of Work*, W. W. Norton & Co., Inc., New York, 1934, p. 180 ff.
[16] S. L. H. Burk, op. cit.

work, collection, and other jobs, necessarily affects the attitude or the "mental set" with which a rater approaches the evaluation of the job. However, in a given organization there may still be men whose attitude toward meter reading is that of many years ago, untouched by the newer outlook with respect to the position of this job along the range of activities in the organization. Although adequate and up-to-date job descriptions help to counteract the effect of such "mental set," it is still possible that experienced supervisors, chosen to act as judges, may approach the task of rating or ranking this job with entirely different "mental sets," depending upon their personal experiences of 25 years ago and their degree of adherence to the traditions of the trade, unless the influence of "mental set" is considered in selecting and training judges.

PROBLEMS IN PRICING JOBS

An aspect of job evaluation, as applied in job pricing and wage administration, which is of particular interest to the psychologist is the question as to whether (a) *there should be assigned to each grade or group of jobs a range of rates, from minimum to maximum,* or (b) *a single rate should apply to the grade or group of jobs.*

Most job analysts agree that for every job included in a particular grade or group, there should be a range of rates determining the limits of wage increases applying to the job. According to Hopwood,[17] for example, for each job there should be a range of rates with appreciable differences permitting increases merited by the proficiency of the individual, and to make available adequate remuneration to individuals who attain maximum proficiency but cannot be advanced to higher jobs. It is also generally agreed that there should be overlapping in wage rates between successive rates in order to permit a smooth transition in pay increases of workers promoted from one job to another in a higher grade. Frequently the range is so established that the maximum for any one grade is equal to the midpoint of the first grade above it and to the minimum of the second above it.*

Recent developments in job evaluation and wage standardization, however, seem to indicate a tendency to curtail or eliminate the range of rates for the job. This, in many cases, appears to be a concession to the real or supposed demands of labor for a single rate applying to all people working on the same job. That this represents the practical working philosophy of many labor unions cannot be denied, but the concession of this by man-

[17] J. O. Hopwood, op. cit.

* The width of the ranges may be varied to suit the requirements of the individual company. Most companies employ ranges varying between 20 per cent and 30 per cent, although some companies have ranges between minimum and maximum as low as 9 per cent, and others have ranges as high as 50 per cent. (*Salary and Wage Administration Report of the Salary and Wage Committee*, Industrial Relations Association of Philadelphia, Dec., 1938, p. 21.)

agement, without at least an attempt to convince labor of the essential inequity and unsoundness of this viewpoint, represents a procedure that will be extremely damaging to the long-term industrial relations program.

There is psychological justification for using a range for each group of jobs, and also for providing overlapping between grades which are adjacent to one another on the yard-stick prepared by job evaluation procedures. Psychological experiment merely confirms the fact which is already apparent in industry, that there are wide differences in the performance of individuals on the same job. It is also recognized that with increasing length of service an employee acquires certain additional worth to the firm which is quite apart from his actual proficiency on the job.

The wage scale devised as the end-result of job evaluation should make provisions for compensating the more proficient and more valuable employees. This is particularly necessary on jobs where no formal incentive plans are used. As a matter of fact, the opportunity of increasing his rate on the same job is in itself a major incentive to good performance, as well as an important source of satisfaction to the worker who looks forward to a lifetime of service on a job.

IN CONCLUSION

The author has attempted to indicate a few of the procedures in job evaluation in which improvements might be effected through the application of the techniques and principles of applied psychology. In doing so, he has perhaps stressed certain negative aspects of job evaluation and failed to indicate with sufficient emphasis the fundamental merit of the objectives in the program of job evaluation. If such is the case, it results merely from the author's conviction that these objectives are so fundamental and so obvious that they need no defense in this or any other paper. It seems self-evident that a procedure designed to establish an equitable basis for compensating employees, as a substitute for the hit-and-miss basis of compensation so widely applied in the past, is a basic need in promoting the adjustment of workers.

Workers who feel that they are paid on the basis of merit will tend to be happier and more productive workers than those who have reason or think they have reason to question the wage scale. However, to capitalize most effectively upon job evaluation, in terms of worker satisfaction, requires that they be encouraged to participate fully and understandingly in the preparation of the yard-stick and that they be provided with a complete explanation of the principles which underlie it. There is no doubt that many wage incentive plans have failed because the workers did not understand how the rates of pay were established. The same may easily prove to be true of job evaluation, perhaps to an even greater extent, be-

cause it deals with the base rate structure instead of, as is frequently the case with wage incentives, only with increments beyond the base.

More job evaluation is needed, but it should also be better job evaluation. To paraphrase what Uhrbrock[18] has already said about wage-incentive engineers, the job analyst should be a master of the scientific method, since his work and the effects of his work will be evaluated and criticized according to the rules of scientific procedure. He must be prepared to defend his methods in terms of the rules of science if he is to apply the word "scientific" to his work. When workers associate fluctuation in their wages with yard-sticks established by methods of evaluation that may be questionable, the entire structure of the industrial relations program suffers. The masters of scientific method guard themselves from attack by applying the best known methods to their problems and by keeping up to date as new methods are developed by their colleagues.

[18] R. S. Uhrbrock. "A Psychologist Looks at Wage-Incentive Methods," *Institute of Management Series 15*, American Management Association, 1935, pp. 10-11.

ARBITRATION OF LABOR DISPUTES

By W. J. GRAHAM
Vice President
Equitable Life Assurance Society

The concept of arbitration has long been known and widely used in American business, but only recently, comparatively, has it been applied to the field of industrial relations. In this article an enthusiastic believer in the arbitration principle, W J. Graham, who is a past president of the American Management Association, and who is Vice President of the New York State Chamber of Commerce, describes how arbitration is being used in settling labor disputes. He discusses such points as: the kind of disputes handled; how hearings are conducted; the degree to which arbitration is accepted; the legal status of arbitration; etc. The article is highly illuminating, showing the practical utility of arbitration and the important status it is achieving in industrial affairs.

ONE of the lessons that have been learned from collective bargaining experience of recent years is that the mere formulation of a contract has not guaranteed future harmony between management and labor. In scores of instances the ink had scarcely dried on the written agreements between employers and unions before knotty problems arose concerning interpretations of the contract.

While actually a majority of these grievances have been trivial when compared to the over-all advantages of the contracts themselves, the resulting strikes, stoppages and animosities have been incalculable.

A case in point, not at all an isolated one, was the controversy which developed in a small industrial town in Pennsylvania where 500 employees struck for a month because an employer supported a newly promoted foreman in his refusal to pay union dues. Unfortunately the contract had not provided for the union standing of regular employees who rose to the status of being able to "hire and fire."

This instance typifies the oversights and susceptibility to varying interpretations that may inhere in all collective bargaining agreements, which are, after all, human-drawn documents and as such subject to the vagaries of human interpretation.

In order to guard against the hazards of future disputes, certain industries like the printing and garment trades have set up their own methods for settling post-contract controversies either through elaborate machinery within their own organizations or through the appointment of impartial chairmen.

Admittedly, government agencies and individual trouble-shooters were doing an excellent job of patching up sporadic differences, but what was lacking was established and immediately available facilities for settling

management-labor troubles before the situations reached a stalemate or a break-off in negotiations.

ORGANIZATION OF ARBITRATION TRIBUNAL

To provide just such facilities, the American Arbitration Association entered the picture in 1938 and organized the Voluntary Industrial Arbitration Tribunal.

The Association is not a newcomer on the scene of controversy. An independent, non-partisan, non-profit-making organization—it was founded in 1926 on the principle that most disputes could be settled out of court with efficiency and dispatch by impartial experts acting as arbitrators. In its early years the American Arbitration Association concentrated on commercial controversies—disagreements between business firms—and to date over 20,000 cases have been submitted. In 1933 it expanded and organized a special tribunal to handle disputes growing out of accident and property damage claims between individuals and the large surety companies.

Then, two years ago, with 12 years of experience in arbitration behind it, the American Arbitration Association entered the labor field.

With the aid of a special administrative council, consisting of 10 employers, 10 labor people and 10 impartial laymen, a panel of over 200 industrial arbitrators was organized. In choosing these arbitrators, the aim was to obtain men of the professions who were not prejudicial toward either capital or labor; arbitrators, of course must be acceptable to both sides.

This was somewhat of a departure from the Association's previous methods, for members of its regular commercial panel of 7,000 men in 1,600 cities were all trade experts. Thus, if a controversy involved, say, the quality of a shipment of woolens, it was arbitrated by a top-ranking authority in the manufacture of cloth. But a labor dispute, being more a matter of principles than materials, the Association felt that impartiality and non-partisanship ought to be the prime requisites for those who were to sit in judgment.

A special set of rules to guide the procedure was then formulated and an arbitration clause for inclusion in collective bargaining agreements was drawn up. The clause read:

> "Any dispute, claim or difference arising out of or relating to this agreement, or the breach thereof, shall be submitted to arbitration under the Industrial Arbitration Rules, then obtaining, of the American Arbitration Association."

The Voluntary Industrial Arbitration Tribunal has been functioning now for two years and during that period over 300 management-labor disputes have been submitted for hearings. A majority of these, over 80 per cent, have come to the tribunal as a result of VIAT arbitration clauses in

contracts. The remaining 20 per cent were submitted by parties having no arbitration agreement, but who were willing to sign such an agreement to refer the dispute to arbitration and to abide by the decision of the arbitrator.

FIRST CASES FROM SMALLER UNITS

As expected, the first cases came from the smaller units from both sides.

A salesgirl was fired for raising her voice to a customer in a small accessory shop. The union admitted her indiscretion, but charged that the punishment was too harsh. The arbitrator decided . . .

A haberdashery salesman asked for holiday pay—he was refused. The union appealed—failed and finally both sides agreed to take their grievance before the Voluntary Industrial Arbitration Tribunal.

And so it went. But slowly and surely, the arbitration idea began to spread, and in six months unions representing from 2,000 to 30,000 workers and industries with million-dollar ratings began to give the Tribunal serious attention.

METHOD OF PROCEDURE

And now, how does arbitration work under the American Arbitration Association and what issues have been presented for the Tribunal's decisions?

The procedure is simple, quick and informal, and perhaps can best be illustrated by a bit of case history.

A little over a year ago a CIO union, after calling an organizational strike against a company owning 30 retail stores in New York finally won a collective bargaining agreement. The employees received a 12½ per cent increase in wages. The company agreed to re-employ all the strikers and to dismiss all the strike-breakers within a reasonable period. In addition the company agreed that during the seasonal lull, layoffs would be carried out according to seniority and no discrimination would be made against union men.

As a precaution against future disputes taking the form of the previous tactics, an arbitration clause was included in the contract naming the American Arbitration Association as the agency to provide the machinery for settlements.

Came the seasonal slump and the expected decrease in personnel began to take effect. After the first few had been laid off, the union complained to the management on three counts: (1) The layoffs were too drastic. (2) The seniority rule was not being followed. (3) Union men were being discharged in greater numbers than non-union workers.

All this the employers vociferously denied. But the old antagonisms

failed to flare. There was no strike talk—no threats—for each side felt secure in the knowledge that within a few days the questions would be decided one way or the other by arbitration.

Within a week after the union accusations were made known to the employers, the American Arbitration Association received a letter from each side demanding arbitration of the points at issue.

The Association drew up a list of available arbitrators. There were about 25 names on the sheet giving the business or professional connections of each. These were mailed to the employer and the union, with instructions to strike off the names of any arbitrators each side did not want. After both sides blue-penciled the selection, about seven names remained. From these, the Association chose three to arbitrate the dispute.

HEARING OF THE DISPUTE

Arrangements were made for a hearing which was held in the privacy of a conference room.

At one side of a long table, sat the company president, the sales manager, the office manager and the attorney for the employers. On the other side were union officials, their attorney and a battery of witnesses. At the head of the table sat the three arbitrators. One was the dean of a law school, the other a professor of industrial management at one of the country's large universities, while the third was a prominent attorney with considerable experience in retail store management. Near the arbitrators sat a clerk of the American Arbitration Association to swear in the witnesses and record the exhibits. (A stenographic record is seldom necessary, for the strict rules of evidence play no part in an arbitration hearing.)

The hearing was held in an informal manner. The attorneys cross-examined the witnesses while the arbitrators themselves interjected a question here and there to clear up a point.

There were no objections by attorneys, such as so often becloud an issue in court. There was no badgering of witnesses. In a single day 25 persons testified. Management offered financial statements to prove that it had to lay off a large number—labor countered with evidence of its own—and so on.

ARBITRATORS' DECISION

After the hearing the parties shook hands with the arbitrators and left. Because speed was essential in this dispute the tribunal of three arranged to meet the following day to sift the evidence. In a week the decision came—mailed to each side by the American Arbitration Association.

Without undue rhetorical complication the arbitrators decided:

1. The seasonal slump was an unusually heavy one and the layoffs were justified.

2. The seniority rule was not adhered to and changes were ordered. A supplementary list of those to be taken back was attached to the award.

3. The union was right that union men were discriminated against and adjustments had to be made.

Both sides abided by the award to the letter, and two months ago when the contract expired, a similar agreement was drawn up with the same arbitration clause included.

If a recital of this case lacks the dramatic—the expected verbal tug of war—which so often characterizes management-labor disputes, the reason is to be found in the attitudes that govern the procedure. In arbitration there are no theatrics, no fanfare. The issues are decided by impartial, objective men, interested in the facts and motives behind the moves. There is no press, no publicity, no curious audiences.

Admittedly these industrial Solomons had a difficult case on their hands. Not all arbitrations involve so many vital questions.

SAMPLES OF QUESTIONS SUBMITTED

But here are a few which the tribunal has had presented to it, and even a cursory listing will show how each one may contain the seeds of long drawn-out controversy if allowed to seethe without settlement.

How shall wages be adjusted when machine production replaces hand work?

How are wages determined when workers are transferred to new work in a newly organized department?

Is an employer entitled to a modification of the wage scale if the union grants better terms to a competitor?

May an employer rescind an increase in pay if the union fails to effect uniform wages throughout the industry?

Was a 10 per cent decrease in wages justified by financial losses of the employer?

How is the wage scale determined when the question has been left open in contract?

Under Federal Wages and Hours Law, is an employer entitled to reduce the weekly rate provided the same hourly rate is maintained?

Are workers entitled to a 10 per cent increase because of higher living costs than existed when the present rates were fixed by arbitration?

May an employer change the method of payment of salesmen, established by the contract, without consulting the union?

How shall the 42- and 44-hour week provided by the contract be distributed among employees?

Did the employer violate the agreement by compelling certain employees to work overtime, thereby depriving laid-off workers of reinstatement?

Is a demand of employees for overtime payment justified by terms of contract?

Is the employer required to pay additional wages to union members requested to work on a holiday?

When specified paid holidays, namely Rosh Hashanah and Labor Day, fall on the same date, are workers entitled to two days' pay?

Are employees who qualify for one week's vacation with pay, but who are laid off before the arrival of the vacation period, entitled to a week's pay?

When an employer closes one of a series of stores and then opens a new one, shall employees of closed store be employed in the new store on a seniority basis?

In dismissing an employee to reduce overhead, may seniority be waived in favor of a nephew of the employer?

Is the principle of seniority applicable when not specified in the labor agreement?

Was the discharge of certain employees a violation of seniority rights?

Was the laying off of a worker of long standing and his later replacement by another union member a violation of seniority rules?

Were two employees morally justified in continuing to work when a strike had been called by their union?

Was the employee's transfer due to discrimination or insubordination?

Was a union member discharged because of inefficiency or for union activities?

Under what circumstances may an employer refuse to re-employ a workman after a strike?

Under what conditions is an employer required to fill a vacancy on a union's demand?

Is an employer required to replace a resigned employee, in view of a decrease in business and poor financial condition of the company?

Does a six-weeks' suspension sufficiently penalize workers who engaged in a fist-fight, or is their discharge justified?

Is an employer justified in changing the method of work in an effort to cut costs?

When is an employer entitled to relief by dismissing an employee, due to a decrease in business?

What is the intent of a labor contract providing that employees shall not be discharged without just cause and only after a review of their case?

Some interesting examples of how far, literally, some arbitrators will go to obtain firsthand information often brings up the question of why these men, serving without pay, are willing to go to all this trouble. The answer is simply that the arbitrators consider it a public duty—once having accepted membership on the American Arbitration Association panel—to do a thorough job. Then again, most arbitrators serve only once or twice a year and the time and effort spent at an arbitration is no hardship to them.

Some cases in point.

A silk manufacturer announced that driven by pressure from the rest of the industry he was forced to increase the work assignment per man. The union protested that any additional loom loads placed on the workers was a violation of the contract. The question was first submitted to the State Mediation Board. The Board decided that there was no breach of contract but suggested that the amount of increase be submitted for arbitration by the American Arbitration Association.

In bringing the case before the tribunal the company contended that an increase from two to four looms per man was in keeping with the rest of the industry. The union denied the contention.

The three arbitrators, Paul Brissenden, Professor of the School of Business at Columbia University, Herman A. Gray, Impartial Chairman for the Knit Goods Industry and Michael Kurz, CPA and attorney, conducted the hearing, sifted the evidence, and then decided to visit the Connecticut plant and study the two and four loom assignments. After a three-day study of the silk plant the arbitrators rendered their decision. They decided that a four-loom schedule would not result in unemployment and that the new increase in work per man would require no excessive effort on the part of the weavers. The employer won his case.

Do the parties to an industrial arbitration always live up to their award? The record is that in less than 1 per cent of the 400-odd cases submitted, did one party or the other disregard the award of the arbitrator.

In view of the fact that the statutes concerning the enforcement of awards in labor arbitrations are conspicuously anemic, this record serves as conclusive evidence of the efficacy of good faith.

LABOR ARBITRATION LAWS

Legislation concerning labor arbitration has not kept pace with the times. While the arbitration laws of 13 states and the Federal Arbitration Law of 1925 now fully recognize and specifically enforce arbitration clauses in commercial contracts, almost half of these modern laws exempt arbitration clauses in labor contracts from the benefits of these statutes.

The laws of Arizona, California, New Hampshire, Ohio, Pennsylvania, Rhode Island, and Wisconsin, although specifically enforcing commercial

arbitration clauses, contain specific exceptions to the arbitration of labor controversies. The Federal Arbitration Act exempts "contracts of employment of seamen, railroad employees, or any other class of workers." It is interesting to note, however, that recently the courts of these states have expressed regret over the limited scope of these arbitration laws.

The most progressive arbitration law is the present New York Statute as amended in 1940. The New York Law recognizes and enforces not only arbitration clauses in labor contracts and collective bargaining agreements generally, but has now brought within the scope of its arbitration law such issues as the fixing of a new wage scale, the rewriting of collective agreements, and other related matters which involve the making of new agreements rather than the interpretation of existing ones.

The lack of proper legislation therefore is no serious detriment to the use of arbitration in labor-management disputes, provided the parties are in earnest about settling their grievances peaceably.

The cost of an arbitration is one of the minor considerations. In commercial disputes the charge is 1 per cent of the amount involved. In industrial arbitration the fee is set by the American Arbitration Association at $10 to $25 a hearing.

As a safeguard of harmonious relations between labor and management, arbitration offers the most encouraging development in years. In a short time it has proved so practical an alternative to the strike and lockout that its future growth has been assured of a much wider adoption.

THE VALIDITY AND RELIABILITY OF RATINGS

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Despite recent refinements in the techniques of merit rating, no wholly objective method of appraising employees has yet been devised. Nevertheless, a number of methods of validating ratings have been used more or less successfully by investigators in this field. Mr. Driver considers here the value and limitations of methods of validation in current use, and discusses also the problem of determining the consistency of ratings. This paper represents part of the author's contribution to a report on rating issued recently by the Industrial Relations Association of Philadelphia.

RATING has been given considerable attention in the scientific journals of the last two decades. Many different rating scales have been described and other phases of the rating process have been singled out as of special interest. The author in a recent article* has described the process of merit rating in industry and has also pointed out some of the precautions to be observed.

The purpose of this article is to stress the fact that rating is of value in industry only when its limitations as a scientific instrument are fully appreciated. Such an instrument is of value only when one can determine what it measures and whether or not it consistently measures the same thing. It must possess both validity and reliability. Ratings are valid only when they are accurate measures of the ability which they are supposed to measure. Likewise, ratings are reliable only when they consistently measure the same ability. Those who are using or who are contemplating using rating procedures should determine for themselves how closely the ratings which they obtain meet these requirements before relying upon them in industrial use.

The following methods have been employed, with varying success, to obtain measures of validity and reliability:

A. Methods of Determining Validity

1. Comparison with some direct measurement of performance, i.e., production records, etc.
2. Comparison with psychological tests purporting to measure the same ability.
3. Comparison with work-samples.
4. Analysis of distribution of results.

* "A Case History in Merit Rating," PERSONNEL, May, 1940.

5. Analysis to determine the presence or absence of "halo effect."
6. Follow-up procedures.
7. Miscellaneous methods.

B. Methods of Computing Reliability

1. Comparison of re-ratings.
2. Agreement existing between ratings of a number of independent raters.

In a survey of this type it is practically impossible to compare the value of the various methods, since this frequently depends on the particular situation in which they are used. However, it is possible to describe each of these methods so that they may be of service to other investigators in this field.

METHODS OF DETERMINING VALIDITY

1. ***Comparison with some direct measurement of performance, i.e., production records, etc.***

In this method the co-variance of the ratings and the objective measure of performance is computed by statistical methods. That is, an attempt is made to produce ratings which, when arranged in descending order from the best to the poorest individual, correspond closely to a similar arrangement of the scores for the same individuals as produced by the other measure. This is without question the best method of demonstrating validity, but rarely, except in laboratory situations, is one able to obtain measures of this type with which to compare ratings. Obviously, in many instances where such a measure can be obtained there is no necessity for rating.

In some instances where individuals are rating eight or nine characteristics, one of these characteristics may be included solely because there exists an accurate record with which it can be compared. The fact that the rating of this trait may prove to be highly valid or without validity does not mean necessarily that the rating of the other characteristics has been made with equal validity, since it has been demonstrated in many investigations that some traits are easier to rate than others.

In general, however, this method of determining the validity of the results is the clearest and most definite, although, at the same time, the least practical in most industrial organizations.

2. ***Comparison with psychological tests purporting to measure the same ability.***

In this method of validating ratings, the co-variance of ratings and test results is computed in much the same manner as in the first method.

Many investigators have deemed this to be a most promising approach, but have found it complicated by three major factors:

a. Tests have not been developed which are measures of the distinct traits that many ratings purport to measure.
b. Many tests have been validated by comparing them with ratings. In some instances, therefore, a serious error may be introduced if the ratings are then compared with test scores to demonstrate the value of the ratings.
c. No test yet developed has been shown to be a completely valid standard with which to compare other measuring devices.

3. ***Comparison with work-samples.***

This is a method with which there has been little experience but which offers promise of significant results. Briefly, a work-sample (not to be confused with O'Connor's use of the term) may be defined as a short period of performance under controlled conditions, the result of which can be measured. This measured unit of performance must be proved indicative of the general performance of the individual. Once this has been established, however, the co-variance of the ratings and this measure can then be determined. This method has been used successfully in demonstrating the validity of tests. It might also be applied to ratings by those who are in a position to undertake the necessary research work involved. There is the further attractive possibility that the research in connection with "work-samples" will provide a better method of evaluating an individual's performance.

4. ***Analysis of distribution of results.***

This method of validating ratings does not require the use of some external measure as a basis of comparison and, consequently, the results are not so definite as those of the preceding methods. It has been observed that the distribution of measurements of human abilities often takes the form of the so-called "normal" curve. Some investigators argue that since this is true of other methods of measuring an individual's ability, it should also be true of ratings. Consequently the test of validity is the conformance of the distribution of the results to the shape of this curve. Some rating procedures have produced an approximation of such a curve, but more often the obtained curve is skewed toward the high end of the scale and the range between the poorest and best score has been significantly reduced.

Other investigators argue that in many industrial organizations the normal curve should not be expected because of the selection, training, etc.,

of the employees, and that this method must be discarded as a means of validating ratings since there is no way of being certain as to just what form of distribution should be expected.

In general, while the matter is open to debate, most investigators apparently believe that their ratings should tend toward a normal distribution, although often they have to be satisfied with wide discrepancies from this ideal.

5. *Analysis to determine the presence or absence of "halo effect."*

The "halo effect" is a rather elegant name for the fact that the rating of one trait is often influenced by those of other traits. Thus an employee who presents a nice appearance and has a pleasant manner is apt to obtain a better rating on all other traits than he deserves. On the other hand, those employees who are deficient in some abilities may obtain poorer ratings than they deserve in all other traits as a result of this inter-trait influence. Raters, unless carefully trained, have difficulty in avoiding such an influence.

Several investigators, because of an absence of the "halo effect," have claimed that their ratings are valid. They believe that because in their results there is a wide difference between the ratings which an employee receives on one trait and those which he receives on others, the ratings are likely to be accurate pictures of the individual. This, again, appears to be a promising approach to the problem, and ratings which do not indicate some dispersion of abilities for each employee are generally considered of dubious value.

The analysis of the "halo effect" has caused some psychologists to contend that the graph of the measurement of a number of traits, observable in the performance of a single individual, should also result in a normal distribution. Thus, for a great number of people (considering one trait at a time) or for one person (considering a great many of his traits), the same type of distribution results. If this contention is correct, when we rate each of our employees on many different abilities and plot the results for each individual we should consider as accurate only those results which conform to a normal distribution.

Practically, however, there are several problems to solve before such a procedure is proved of value:

a. We must be sure that the unit of measurement is the same for every trait. It is very doubtful if this is true of most rating scales, although the use of the standard deviation of the group is apparently the most attractive solution.

b. In validating ratings we are also validating the rater. Therefore, in order to determine validity by means of this procedure, the rater must be trained to appraise each trait with equal skill.
c. It is generally impractical in industrial organizations to rate enough traits to determine accurately whether or not the "halo effect" is present.

Other problems also are present, but for our purpose it is clear that absence of the "halo effect," while interesting, is not conclusive proof of validity. In most industrial rating the "halo effect" is clearly noticeable, but where it is not prevalent the ratings are considered of greater value. Obviously, if the ratings are distributed within a narrow range the "halo effect" must necessarily be increased. Thus the objective of most investigators is to produce a wide distribution for each trait.

Lombardi* has approached this problem in another way. She requires the rater to compare, for one individual, each trait with every other trait. Thus she produces a distribution for that individual. Such a comparison must necessarily be relative to the particular individual, and has not gained wide popularity in industrial situations. The author has asked the raters in one company to produce a comparison of a number of individuals. Then, in discussions with raters, additional comparisons, of the type described by Lombardi, were made in order to assist the raters in the problem of individual analysis. Such a procedure serves to reduce the prevalence of the "halo effect" and, possibly, to increase the validity of the rating.

6. *Follow-up procedures.*

With the exception of the first method of comparison with a direct measurement of performance cited in this discussion, the follow-up procedure seems the most helpful at this time. This method requires that ratings be obtained for each individual, and then later that these ratings be compared with the progress of the individual in the organization. Obviously when the ratings are used to influence the future of the individual, such comparisons are worthless. In many instances, however, it will be possible to compare a rater's opinions with ultimate success or failure, and thus obtain some indication of the value of this material.

Such a procedure does not make adequate allowance, however, for changes occurring in the performance of the individual. Further, the method must require a waiting period of at least a year before any conclusions can be drawn. However, in situations where these conditions can be met satisfactorily, this method offers one of the most objective means of validating ratings. This procedure has been widely used, but generally on

* Lombardi, M. M. "The Inter-Trait Rating Technique." Teachers' College, Columbia University, New York, *Contributions to Education No. 760.*

an unorganized basis. There is a vast field here for careful scientific appraisal of results which may throw much light upon this problem.

7. *Miscellaneous methods.*

The author in attempting to validate the ratings arrived at in one company has used the following methods, none of which is as widely known as those more fully discussed above:

a. Comparison of raters' opinions with those of one person considered very well informed.
b. Comparison of ratings with recommendations for salary changes.
c. Analysis of the differences occurring in ratings as a result of training the raters.
d. Analysis of the consistency of ratings when an individual is rated in different departments.
e. The readiness with which a rater is willing to change his opinion may also be indicative of validity.
f. Comparison of the ratings of a group of individuals considered outstanding in the company with the ratings of a group of inferior individuals.

This discussion of the methods of validating ratings would not be complete without indicating that many of these methods may be used at the same time. The consideration of the results obtained from several methods may be more indicative than the result of any one method. It should be remembered, however, that in such procedures it is extremely doubtful if one is actually validating a particular rating scale. Probably one is validating the rating method as a whole (scale, rater, ratee, etc.) and as it exists in one particular situation. Consequently, it is dangerous to borrow a rating scale which is valid in one company and expect it necessarily to be equally effective in some other company.

For this reason, it is also of little value in a report of this kind to quote the results of any of the numerous studies on this subject. The author has attempted, however, to illustrate the methods that may be employed in any situation. Those who will refer directly to such studies will find that various investigators have been satisfied with widely divergent degrees of validity. One should also be careful to discriminate between studies in laboratory situations and those in industrial organizations, since the conditions are widely different and the results may not be comparable.

METHODS OF COMPUTING RELIABILITY

In contrast to the problem presented in the attempt to validate ratings, this problem is relatively easy and the results are generally far more satis-

factory. Or, in other words, even though the rater may not be accurate in giving the proper name to the actions which he observes, he is consistent by generally giving the same name to the same type of performance.

1. *Comparison of re-ratings.*

The most widely used method of computing the consistency of the rating method is to compare the ratings completed at one time with those completed at the end of a stated interval. This problem is, of course, complicated by any changes in the individual who is rated, but if the interval is sufficiently short (three months to one year) these changes are assumed to be insignificant. Changes of this sort will serve generally to reduce the consistency of the rating.

2. *Agreement existing between ratings of a number of independent raters.*

Many investigators have failed to appreciate the distinction between validity and reliability, and consequently their results are difficult to interpret. The problem as to whether agreement between a number of independent raters indicates validity or reliability is one that has caused much of this confusion.

Some investigators feel that if three or more raters all agree as to a particular quality, this indicates that they are all rating the same trait in the performance they are observing, and hence that this method is a measure of validity. Others have argued that agreement between judges does not mean they are all drawing the correct conclusions, but that they might agree on some erroneous answer, and that this method is a measure of consistency of rating rather than of validity.

This problem is difficult to resolve, but in most investigations such agreement is desired. Whenever individual raters do agree, it is felt that the ratings are of greater value. The author believes, however, that in many industrial organizations such agreement is often impossible of attainment. In many cases raters in the same department have varying degrees of contact with the employees, and see them perform under widely different circumstances. Thus a comparison of such ratings often will not produce agreement, and the indicated divergence of opinion may be of great value to those interpreting the ratings.

In conclusion, it must be emphasized that in order to be able to accept a rating as an accurate measure one must prove it to be valid and reliable. That this is extremely difficult to accomplish does not mean that ratings cannot be used, but it does mean that great caution must be observed in the interpretation of these organized opinions.

LET'S RECOGNIZE THE FOREMAN!

ANONYMOUS

Each year greater stress seems to be laid upon the importance of the foreman's position. Throughout industry he is regarded as an individual upon whom rests manifold responsibilities. His is the "key" production job, for he is the first line of contact with the rank and file, and he must be a leader in the most practical sense of the word. The author of this article, who is the Plant Personnel Manager in a company in the mass production field, asks whether management is doing its share to equip the foreman for his responsibility. Is the differential right, he inquires, between the foreman's pay and that of the men he supervises? Is he given authority consistent with his responsibility? Does management try to "build up" the prestige of his job? The article tries to give the foreman's slant on these questions.

YOU have seen it happen as often as I have, for it happens in even the best managed companies in these hectic days. Sometimes it is caused by an unexpected emergency, other times by a complete lack of a preparedness program, and much too often by a lack of recognition of the importance of good foremanship to a company's well-being.

A new foreman or supervisor has to take a position made vacant by death, created by the establishment of a new department, or added for better unit supervision. Management selects the man. He won't, as was so often the case in yesteryear, be the man with the longest service, or the best working knowledge of the operation. He's much more likely to be a younger man who has shown some aptitude for handling people, for understanding costs, for seeing management's viewpoint. But the emergency or vacancy comes suddenly, and he isn't adequately prepared, he isn't trained. Still, management needs a new foreman, so he gets the job. He gets it on Friday afternoon at 4 p. m., after he has finished his shift.

His department head calls him in and tells him the good news. Over the weekend—Saturday and Sunday—he is to go through some strange change so that on Monday morning he can come to work in street clothes and be a foreman. From being one of labor, acting, living and thinking like labor, he is to become part of management, acting, living and thinking like management. Preposterous? Yes, but it happens all too often. Having spent his lifetime to date working with machines and materials, he is now to start working with men and management. His department head gives him a pep talk and tells him he has fullest confidence that, now that he has his chance, he will do the job better than it has ever been done before—beginning Monday morning.

PROMOTION INTERVIEW

His department head outlines the job for him briefly. "You've been here a number of years, and are familiar with our operations." The man

has been responsible, heretofore, for his own personal safety. Now he's responsible for the safety of 25 men. He's kept his own working area clean, but now he must keep his whole department area clean. He's been a high quality worker (that helped to get him the job of foreman); now he must see to it that 25 men aim at and make high quality standards. He's been a good producer, and knew that meant his costs were in line, but now he must see to it that 25 men—men with whom he has worked side by side for several years—are good producers and that the department's costs are in line. Using the favorite and well-worn phrase, his department head tells him, "You must represent men to management, and management to the men." It might be better to say, "Brother, from now on you're in the middle." At least the new foreman can understand that.

The department head concludes the promotion interview by saying: "Your average earnings for the last six months have been $1.47 per hour, or $58.80 per week for a 40-hour week. Beginning Monday, you will be on a salary at $60.00 a week." The department head is a good salesman, and he has the old follow-through: "Of course, there are a lot of advantages enjoyed by salaried people which hourly people don't have."

WHAT ARE THE ADVANTAGES?

Our new foreman, as part of his preparation over the weekend for the new job, figures this statement out and discovers to his surprise, that as an hourly employee he has been getting just as much vacation, just as much group insurance, the same mutual benefits, an equivalent year-end bonus when given, as any salaried man in the company. What, then, is to be his advantage as a salaried worker? The only advantage he can see is regular pay when he is out of work because of a brief illness. He's lost some 10 days in seven years, so that doesn't seem so big.

In the days that follow he learns that when trouble occurs and his services are required for 50 or 60 hours in a week, there is no time and one-half over 40 hours to compensate for it. He learns to carry a lot of burdensome worry home from the shop each night, because he is part of management now and his responsibilities bring with them worries. Also, he learns how often people can wake him up at all hours of the night to cover the latest problem with him and invite him in to help solve it—for isn't he the boss and isn't he getting paid to solve the problems?

To management, this attitude might seem shortsighted and unwarranted. It did to me, too, at first, because I was brought up in the school of "opportunity" and "don't work just for the present, work for the future." I still believe in that personally, but this other slant, the slant of the man who has worked with his hands and not his head for many a long year, has been driven home to me forcefully by some of the men who have really

thought it out for themselves. One man refused outright a promotion to a supervisory post, and told me why he refused it. Another took the job, and six months later asked for his old job back again. Both of these men, incidentally, had seen fellow workers accept such promotions, fail, and return to their old jobs. They know such men are never entirely happy in their work again, for failure has a haunting quality. And the point I want to make is that these men don't blame themselves entirely for such failures, they blame management to a great extent.

WHAT BEGINNING FOREMEN WANT

Here is why, as they put it to me. When a man is promoted to a bigger job with more responsibility—and certainly crossing the line that still exists between labor and management is just that if anything is—he thinks he should have five things given to him with that promotion. Here are those five things:

1. Fair wages or salary.
2. Prestige.
3. Proper authority.
4. Adequate assistance.
5. Opportunity.

Let's treat each of these points separately, and see what happens in many instances.

WHAT ABOUT WAGES?

Each person reading this article knows how many times a worker walks out with more money at the end of the week than his boss. Granted that many or most times that is caused by an incentive system that is out of whack and "must someday be straightened out"; by a combination of overtime work, emergency work and Sunday or holiday work; or by the fact that the new foreman hasn't yet proven his worth or his right to the job and he is being given an "opportunity." The truth usually hurts, and the truth is that foremen just plain don't like this. I've talked to dozens of them in dozens of companies. You have only to give them the slightest opening, and you'll get their feelings on this subject. To 9 out of 10 foremen you can't justify this fact of lower earnings than the men they supervise, and companies lose dollars and progress right and left by permitting a foreman —a leader of the working men—to be disgruntled over a few dollars a week to the point where he worries more about that fact than he does about doing such an outstanding job that he can rapidly change that picture.

Surely he is shortsighted, surely it is the wrong approach to the problem, but surely, too, it is human nature, and it's down-to-earth, realistic human beings who are promoted from the ranks to supervisory positions.

The surprising point is this—maybe they are just a little bit insincere—these foremen say it's not so much the fact that their check is a little smaller, not just the dollars and cents, but the fact that their men find it out and *don't have the proper respect for them* and their position after they find it out. How do the workers find it out? Well, you have a "grapevine" in your company, don't you? And as if that isn't enough, many new foremen, so lately out of labor's ranks and so reluctantly and slowly really included in management's ranks, have a tendency to cling to the labor side where they have friends of years' standing, because they have to be with one group or the other. One confidence to a trusted friend on this point, and it's out. This knowledge that they make more than their boss sets the boys up, and it's too good to keep.

DOES HE HAVE PRESTIGE?

The second thing our up-from-the-ranks foreman wants is prestige. When he is chosen as one of 25 men to lead 25 men, he thinks some prestige should go with it. The captain of a football team has plenty of prestige; so has the sergeant in the army. The foreman has pride, is vain, is human. He too wants prestige. The plain truth of the matter is that being given the job and the title isn't enough, it must be backed up. The salary discrepancy mentioned above is one point that affects his prestige. The failure of management—the works manager, the production superintendent, his department head—to pass down the line, quickly and correctly, the answers to the questions and rumors that are always popping up in labor's ranks adversely affect the foreman's prestige. If he doesn't have the answer, he isn't in the know and he doesn't amount to much in labor's eyes. The unhappy habit so many department heads have of passing out the raises to their men personally, taking credit for them personally, and sometimes, believe it or not, even deciding who should get a raise without consulting the foreman, hurts the foreman's prestige. Labor knows where the good things for them come from, and no straw boss will get their respect if he can't affect their rate of pay. Some department heads place foremen in the same category as their line workers, and even detour the foreman to say, "You stick with me, Bill, and I'll take care of you." Can you blame the worker for not having respect for his immediate superior, the foreman?

DOES HE HAVE ANY "SAY"?

The third thing our new foreman wants is the authority that goes with the job. The authority to make some decisions of consequence, the many decisions that rightfully fall within his province. If the department head makes all the decisions, the foreman doesn't amount to much in his own eyes, or in the organization's eyes. The authority to recommend promo-

tions or demotions, and have them acted upon; the authority to mete out justice, in accordance with company policy, of course, without having to take it to the department head except for a major thing like dismissal, and *having his action backed up;* the authority to make decisions in the normal run of the job. Of course he'll make some mistakes, but how else will he ever learn? It's possible to back a man up, and still show him how to correct his mistakes. It's possible too to relieve some of the tremendous bottlenecks that most organizations have by delegating a little authority to such vital, front-rank workers as foremen. How else will we get a bigger and better job done? How else will we build bigger and better men than to give them authority, back it up right or wrong in the eyes of the workers, and point out to the new foremen their errors, teaching them how to avoid them in the future?

DOES HE GET ADEQUATE ASSISTANCE IN DEVELOPING HIS ABILITY?

The fourth thing our neophyte supervisor wants is adequate assistance in developing the ability to do the new job. This point startles me more than any of the others. I have always operated on the premise that it was up to me to develop my own ability in a new job. Our man who has just jumped across the big line between labor and management doesn't see it that way, not at all. He admits he isn't an expert in handling people. He admits he doesn't know all there is to know about safety methods, cleanliness programs, production efficiency and cost accounting. And he seems also to recognize the fact that it is now, on the weekend of his promotion, altogether too late to start going to school to learn about these things.

He wants to be taught by the men who have gone before him. He wants some time with his department head on each one of these points; time in meetings as a group, yes, but more importantly, individual time when the department head takes him as one separate and distinct personality, and helps him to become a better foreman. The big complaint is "My department head is too busy to give me the help I need." He also wants the time to toss out some of his original ideas, and learn their strengths and weaknesses from the department head's longer experience and greater knowledge. He wants to be taught so he can go ahead.

All too often the department head is so bogged down with the authority he won't delegate to the foreman, or so intent upon his own efforts for personal promotion; or—I don't like to say it, but it's often true—so shortsighted that he doesn't want any foreman to get good enough to be a threat to his position, that there is very little if any training and teaching going on.

The tremendous growth of and interest in foremen's clubs throughout the country on the part of foremen is ample proof that foremen want to learn new angles on their jobs. Foremen dig down in their jeans and pay

for dinner and a lecture on a dry and unappetizing subject like "safety" because they want to be better safety administrators, not because they want one night out a month. Foremen themselves have seen the worth of this movement while much of management is still lukewarm on the matter, yet management should do anything it can, save actually run and direct the clubs, to further this training and education for their men, to encourage a healthy swapping of ideas with foremen in other plants, and to help secure the ablest speakers in America on the various subjects so close to a foreman's work. Yes, new foremen definitely feel it is part of management's responsibility to help them over the hump, to help them learn, quickly and effectively, the strange ways of their new and foreign job.

WHAT ABOUT A "VOICE IN MANAGEMENT" FOR THE FOREMAN?

The fifth and final thing our new foreman asks is opportunity. It isn't generally realized, I guess, but a recently promoted foreman is in a pretty cold spot. He has left the warm and comfortable position in "labor," where he was tops in ability, where he knew all the answers, where he was one of the boys, and where he felt a real sense of security. He's been asked to join management, been extended a gracious invitation, and then he's knocked all over the lot as he fights to actually get into management. This "outsider" feeling often breaks a man with real potentialities before he has a chance to get started, because it doesn't match the blue sky that was sold to him with the job.

Just what is the opportunity he asks? The opportunity to sit in on production management conclaves, so he can see how the older, wiser and more experienced heads reduce problems to their essentials and find the correct answers; and so he can have a chance once in a while to toss one of his very own ideas into the ring for a calm and dispassionate analysis of its merit. He wants this opportunity in contrast to what he usually gets—orders from above. Orders to do this and to do that, just as they came to him when he was a man on the bench, a rank beginner his first months on the job. He wants his own experience over the years, and as it comes to him daily, to begin to carry some weight in the forward progress of his company. He wants the things he learns from his men to pass on up the line for discussion, for their proper influence in the formation of company policy, for their value to the company in new ideas or labor viewpoint. He wants to be at least a small part of the thinking that helped to make the decision which affects the 25 men he supervises. That's what he calls opportunity, and all too often he feels he isn't getting it until he has battered and bruised himself about to the point where he doesn't much care any more if he does get it.

These foremen I have talked to—the ones that have the job, the ones

that refused the job, the ones that have failed on the job—have convinced me, for one, that they have a point which management should not overlook. There's a big job to be done by American industry in these years just ahead, and there are going to be many hundreds, many thousands of new foremen who are trying to bridge the gap between labor and management as their part of this big job. They want themselves recognized by management, so management will give them a fair chance to succeed in this new venture. They, more than any other group, feel the tremendous loss that results when management fails to keep the lines open for two-way traffic, from the employees up to top management, and from top management down to the employees. They feel that they are in the best position to do one of the biggest jobs of all in the years to come, because they are really closest to the employees themselves and have the best chance to influence those same employees to do the task that lies ahead in the best and most efficient manner.

These neophyte foremen want an opportunity to do that job, and ask of management the recognition and the tools with which to work. Certainly management and America would get a return far greater than the money or effort expended to give them that chance.

In summary, then, our new foremen want:

1. Wages commensurate with the responsibility of their position, and set with due regard for the wages earned by the people they supervise.
2. Prestige that is vital if they are to have the respect of their men, and hence their cooperation.
3. Authority that goes with a supervisory post and enables them to be foremen in more than name only.
4. Adequate assistance in developing the new abilities which they must possess to change successfully from laborers to supervisors.
5. Opportunity actually to become a part of management, working with management for the common good of all.

TESTS FOR THE SELECTION OF OFFICE EMPLOYEES

By MILLICENT POND

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Significant progress has been made of late years in the use of clerical ability and aptitude tests. Among the pioneers in this field is the Scovill Manufacturing Company, which has achieved unusual success in weeding out unpromising applicants through a carefully devised test of general intelligence. In this paper which was presented at the last AMA Office Management Conference, Dr. Pond describes this test and discusses her experience with various other tests of clerical proficiency. An objective scrutiny is made of aptitude and personality testing.

THE present great increase in interest in tests for the selection of office and industrial workers is both commendable and open to criticism. It is long overdue, hence its arrival at last may be hailed with gratification. Unfortunately, however, instead of having used the time which has been at our disposal since tests were first available, in a careful building up of recorded experience, we have skipped such experimentation and are calling today for quick installations, panaceas for an emergency that confronts us. We want to read a label on a bottle, and swallow the medicine bought without a prescription.

Both test validation and the building up of a sound testing procedure in any organization require time and trained supervision, and the only place where the final research can be done is in business and industry itself. Let us be clear about this. Testing techniques for school use, developed first in college laboratories, have been checked and modified by years of patient and widespread investigation in the schools themselves. It is there that the necessary material is found for carrying on such investigations—namely, the pupils for whom the tests are eventually used. At the same time, hundreds of studies have been made in college laboratories to determine what adult abilities can be measured by tests and how such tests should be constructed. There has been no magic in this process, no brilliant guesswork that has not been subjected to repeated trial. Failures have occurred as well as successes. A well-constructed test is one whose weaknesses have been discovered by trial and eliminated by drastic cutting. It is not considered possible either to build a good test or to recognize one by desk work alone.

The products of all this laboratory work are available to us. The important piece of work that has not been carried out adequately, as yet, is an equally patient investigation in business and industry of the relationship of the abilities measured by tests to the requirements of specific jobs. What are the abilities, measurable by tests, that contribute to success in

a given type of work? How much of each of these abilities will enable an individual to perform his tasks easily and well? How shall we apply the tests without impairing morale and effort? How shall we evaluate our program as it goes along? These are the immediate questions. All our attempts to answer them must be subjected to unbiased, arithmetical checking. We must keep records of all cases, tally impartially with measures of job success which are not influenced by knowledge of test scores, and drop our pet theories when cold statistics prove them wrong. On the other hand, we must not give up too readily, for the study of human abilities is a complex one, and it is quite possible to nullify the work already done by deciding prematurely that we have not found the relationship sought. College laboratories do not have business and industrial occupations on which to conduct studies, nor the types of people engaged in them. Such studies have not yet been carried on in enough firms or in sufficient detail to permit of rapid application of tests in new areas.

Knowledge of statistics is imperative for this work, and so also is a wide knowledge of laboratory, school and clinical research in testing. An amateur flounders, and cannot tell why, is not even aware of the errors that he makes. The time that he spends in even partial learning of the field represents a heavy expense to the firm employing him, and so also do the errors he makes. Quite simply, it seems to me, the firm considering the use of tests for the selection of employees can save money by employing an adequately trained person, on a part- or full-time basis, to supervise the proposed installation.

Perhaps the following discussion of tests for the selection of office employees will give some indication of the force of this statement.

EFFECT OF TECHNOLOGY

Let us begin, as we should, with a general analysis of office work today. During the last fifteen to twenty years, clerical work in large industrial firms has undergone great technological change. We are all familiar with the development of office machinery, the engineer's contribution to routing and manipulation, the uses of carbon and forms in record making, the centralizing of types of work, and the emphasis on speed that have resulted from the combined requirements of increased total production in our offices, improved quality of output, and maintenance of the lowest possible costs for office work. It is easy to assume at first glance that these changes have made the work of individual clerks so specialized and repetitive that they have lowered the intellectual demands made upon them. I am sure that exactly the reverse is true—that in general we have increased our demand for comprehension, variability, speed, accuracy, reasoning ability, and an ability to cooperate with others in office work. If this is true, it has an

important bearing on the problem of testing; consequently, we must examine the matter further.

First of all, there is a logical reason for such a development. Given a certain volume of clerical work to be done by hand by a group of clerks, and ample time in which to do it, let us suppose that 20 per cent of it is essentially analytical but that 80 per cent of it could be segregated and centralized as repetitive work. We arrange this segregation, simplify certain processes, introduce machines, and drop the unnecessary clerks. The net result is that the proportion of time to be spent in analytical work is much greater than it was originally. A larger proportion of the clerks who remain must be capable of analytical thought.

INCREASED COMPLEXITY OF CLERICAL TASKS

The character of this change has been obscured by the fact that we have not actually had to drop many clerks, except those who could perform only routine work, because of the constant increase in the total volume of clerical work to be done—an increase which would have burdened us greatly under the earlier methods of work. This increase in volume has entailed an increase in complexity. Cost records, tax records, purchasing, billing, production scheduling, timekeeping and employment record keeping—all have ramifications today that did not exist formerly, and these involve understanding and discrimination on the part of the clerks as well as the supervisors. Speed in clerical work is itself a mental requirement. Moreover, resulting as it has not only from the drive for low clerical costs but also from the present necessity for quick delivery of products and reporting of data, the requirement for speed often carries with it an elimination of the process of checking for errors. Precision is necessary, but work must be accurate from the beginning, whether performed on a machine or by the human brain. Let me call attention to a phrase which we supervisors often use. We frankly state that we plan to "catch" certain errors at specified points in each process. But although the supervisor does the planning, is it not the clerks who do the catching? Constant alertness for error, quick recognition of errors—these are valuable mental functions in office work.

CENTRALIZATION AND SPECIALIZATION

Even centralization and specialization are not a denial of the thesis that there is a high degree of mental ability required in clerical work, for specialization increases the emphasis on competency, while centralization, with all its advantages, does remove the worker from the source of data. Think of the dictaphone operator, and the variety of subject matter, vocabulary, and authors' preferences she must handle, with a minimum of

inquiry, in minimum time, but with maximum quality of output. Think of the mailing clerk, who operates telegraph, teletype and postal meter, and has become the company watchdog for waste of money in communication. Think of the employment office clerk, who takes an adequate history of each new employee; schedules him for interviews, tests and physical examinations; aids him in his social security application; and in the last few months has learned the intricacies of the naturalization laws of this country. Confronted by a female applicant who was born here, but who was married twice before 1922, first to a non-citizen, then to a citizen who derived citizenship as a minor from a naturalized father—this clerk can tell her whether or not she is a citizen, just what proof she must bring for our record, and where she can probably secure each item of proof if it is not in her possession!

These are merely illustrations. Note that each one indicates a situation in which tact is required, and an ability to ask an intelligent question, to understand quickly, to suggest a change, or to explain a new and perhaps unwelcome situation to others. Tact and clear self-expression are required from these clerks, as well as comprehension.

In addition to the above, there is one more point to make. If we think of clerical workers as permanent groups of specialists, each with a limited round of well-learned duties to perform, we overlook the whole dynamic aspect of the situation. These people do not remain permanently in the same positions. The tasks are relatively fixed, but the people performing them move. The more complex the problem of any supervisor, the more he desires flexibility in his office group, as a provision against emergency; the more he provides for an interchange of duties for his personnel, the more readily he promotes them; and the more fluid the promotion policy of an organization, the more necessary it becomes to select for the lowest positions persons who are capable of progressing eventually to the highest.

SELECTION PROBLEMS AT SCOVILL

The field from which we make our selections at Scovill Manufacturing Company is a large one. It is made up of young men and women with little or no business experience, with high school, business school, or college training. Their interests within the range of clerical subjects are still flexible, and so are their attitudes. Because there are many who are attracted to clerical work solely by the prestige attached to it, without being particularly fitted for such work, many of the candidates would not succeed in our offices. How can we distinguish among them? Recommendations of school officials are based upon observations of these individuals in a situation which is essentially different from that of the office, and the recommendations of friends lack objectivity. Analytical interviewing, important

as it is, is handicapped in two ways: first by the fact that many of the required abilities cannot be appraised in an interview, and secondly by the difficulty that the interviewer has in maintaining his judgments against the unobjective pressures of friends and relatives of the applicant.

From this large field of candidates, then, and under these handicaps, we wish to select people of quick understanding, capacity for rapid and accurate work, ability to learn complex material, verbal ability, ability with numbers, specific skills on office machines (or a probable ability to learn such skills), and an ability to cooperate with others. Good memory, too, is an invaluable clerical ability, and so is a degree of originality or initiative which does not involve an over-emphasis on self or on the new idea in contrast to the old. No wonder we desire a perfect test to appraise these qualities, which may or may not lie behind the eager young faces of our applicants in sufficient measure to spell success for them and satisfaction for us.

In the light of this analysis of office work, it is not surprising that significant progress has been made toward the improvement of employee selection by the use of examinations known as general intelligence, or mental alertness, tests. Many firms are now using tests of this nature in the selection of clerical workers.

GENERAL INTELLIGENCE TEST

The general intelligence test used for this purpose is typically a series of clearly expressed problems from which all technical material has been excluded. The problems are presented in terms of everyday experience outside the schoolroom, in order that the answers may measure the ability of the individual in various types of reasoning rather than the amount of schooling he has had. The answers are written, but through very strict economy in the amount of writing required it is possible to include a rather large number of questions in a relatively short test, and about 90 per cent of the time spent in taking the test is thus given to comprehension and thought rather than to the writing of answers. The tests are time-limited, and thus the element of speed of comprehension and reasoning is introduced. The problem material found in these tests is often predominantly verbal, although a few non-verbal items are found.

My own experience has been with the type of paper-and-pencil general intelligence test in which non-verbal items and verbal items are about evenly represented. The various kinds of problems are not mixed; rather, each page of this test contains only one type of problem, and is timed and scored separately. Thus at the end of the test we have for each person a separate score in number checking, picture completion, form discrimination, symbol substitution, arithmetical reasoning, vocabulary, and general verbal

reasoning, and a general score which is the average of all these. Each person can be compared with others, both in the total score and in the various parts of the test, and each can be analyzed for his particular strengths and weaknesses relative to his own average, so far as the test goes.

VALIDATION PROCESS

During the period in which we were engaged in determining whether or not the scores in this test have any useful relationship with degrees of success or failure in clerical work, all new clerical workers were tested, but the tests were given after the workers had been hired and did not influence the selection. Over two hundred each of men and women were tested. When sufficient time had elapsed, the work that these persons were doing was analyzed and classified as to difficulty and complexity, the workers were carefully rated by supervisors who did not know the test scores, and these ratings were checked with records of promotion, demotion and discharge. Of the whole group, only 65 per cent were considered definitely satisfactory in office work, and only 30 per cent were considered excellent in the lower grades of clerical work, or were handling supervisory or complex types of office work with success.

For both men and women there was a steady rise in the percentage of successful workers as the scores increased—from 10 per cent for the few who scored below 130 in our scale, to 94 per cent for those who scored 180 or over. In this last group, 75 per cent were considered excellent. Superficially, it might seem possible to set a minimum score of 180 for all clerical work, and to say that in this test a highly efficient instrument had been found. Actually, this would be far from efficient, for only 10 per cent of the whole group scored above 180; any acceptance of this as a minimum score would reduce the supply of qualified applicants far too severely, would eliminate unnecessarily, and therefore unjustly, too many persons who could succeed, and would fail to provide a desirable number of workers whose promotion might be less rapid than that of the others. We cannot afford to overlook these factors.

MINIMUM SCORE ESTABLISHED

About one-third of the original group scored above 170, and about two-thirds scored above 160. In the third of the group that scored from 160 to 169, the percentage of satisfactory workers was practically the same as the percentage for the whole group. We therefore set a minimum score for all clerical work at 160. No one who scores below this point is either hired or transferred into clerical work. All applicants who score above 160 are interviewed and considered. The interviewer weighs the factors of experience, training, and temperament; the special abilities of the appli-

cant as indicated by the separate scores in number checking, arithmetical reasoning, vocabulary, and verbal reasoning; the skills, as indicated by typing, shorthand and comptometer tests; requirements of the particular openings to be filled; and the lines of promotion to which those openings lead. Scores of 170 or over are desired, and consequently they are given added weight. It will be clear that care in interviewing is quite as important as it ever has been, but that the interviewer, using tests, has more concrete information on which to base his judgments than was formerly available. With this procedure, selections for clerical work have a much higher degree of success than is possible without tests.

The Minnesota Clerical Test has also been used effectively in the selection of clerks. This, too, is a paper-and-pencil test. It is not a test of general intelligence, since it consists entirely of checking problems, but it does involve both the verbal and numerical elements in rapid checking work. As to its merits I am unable to comment further, since I have not been closely associated with any work done with it.

Tests of grammar, punctuation and spelling have not seemed to me very important, perhaps because I have not used them and therefore have not weighed their significance, perhaps because the range of proficiency in these items of the high-school trained clerk who has passed a general intelligence test is sufficiently high for the requirements of factory correspondence. Certainly, however, the final responsibility for good grammatical form often does rest with the stenographer.

On the other hand, tests of skill in typing, shorthand and comptometer operation are highly essential in filling the positions which require these skills.

TYPING AND SHORTHAND TESTS

For the measurement of typing proficiency, many of the State Employment Service offices have been provided with carefully developed test procedures, which any employer in a locality where there is such an office might use. Each employer must determine for himself what the standards for his offices should be. It does not seem to me, however, that these standards need be so carefully verified as in the case of the general test. My experience antedates the development of the Employment Service tests, and is based on the use of test material and procedure commonly found in the typing classes of schools, with one modification. After the candidate has had a practice period on the test typewriter, and has typed from suitable printed copy for 10 minutes in what she considers a "speed" test, we start her again with a new page of copy, warning her that she is now to consider accuracy more important than speed and that she is to give us a perfect paper. She is furnished with an eraser and instructed to use it if she makes

an error. She is told that she will be timed as before. Many individuals attain the same net score as before, and submit no errors, but for others who cannot control their errors the net score is lowered. In a few such cases we have assigned repeated exercises of this sort to the same typist on different days, without securing an accurate paper, and this measurement consequently seems to us quite important.

Shorthand tests are also available in the Employment Service. I believe that these should be used, or the standard procedures of the schools followed, if one is not trained in test procedure. It is apparently a tendency for the layman, in testing for shorthand proficiency, either to dictate from his current correspondence, thus presenting different problems to the different candidates, or to prepare a "catchy" or technical letter for dictation, under the impression that tests must be difficult. Both of these procedures are erroneous, and therefore costly, since they do not measure the specific skill for which measurement is desired.

A test for comptometer proficiency in office practice should be devised and validated in a firm using a large number of operators, or through the cooperation of several firms. Such a test need not be elaborate or long. Ours is based on a study of 52 operators. Although we started out with nine different types of problems, each on a different page as in the intelligence test, we found that five of them could be dropped, including the problems in division and subtraction. The remaining four involve addition, multiplication, and two applications of these two processes. It is uneconomical to use longer tests than are required for the measurement of any aptitude or skill, and ineffectual to retain fewer units than you need. This is one of the cardinal principles of the trained test administrator.

The comptometer test has proved of considerable value in our selection of operators. Full comptometer training involves not only comprehension of the processes involved but muscular training as well. Comprehension of the processes can be attained quickly, but the muscular training takes time. Many applicants sincerely claim comptometer training, having spent a few hours with the machine at school, but have not practiced on it sufficiently to rank as operators. With this test, brief as it is, we avoid any unjust criticism of individual schools, yet distinguish between the candidates who are really prepared for comptometer work and those who are not. Our study also indicated to us which of the sub-tests of the general intelligence test are important for success in comptometer work.

OPPORTUNITIES FOR RESEARCH

Skills in the operation of other office machines could be made the subject of test studies, and possibly have been studied by other investigators. Moreover, it is quite possible that a general aptitude for the key-

operated types of machines– involving speed of eye and hand coordination and rapidity of finger movements–might be tested. Because of the specific character of many of the extending machines, which are built to the order of the customer, operators are usually trained on these within the office. Under such circumstances, a measurement of aptitude rather than of skill is indicated.

As tests of any nature are used in the selection of employees, the standards of the supervisors rise. This is the way of all progress; certainly the field of employment is no exception to the rule, and there is still room for improvement in our test procedures. As I have already pointed out, however, we are not justified, either economically or from the social point of view, in trying to secure this improvement merely by the raising of minimum scores in tests which do not differentiate sharply between good and poor workers. The idea of a single test of 100 per cent efficiency is still a myth.

The way to achieve further improvement is to try other tests. The Life Office Management Association, in its cooperative study, is doing just this. Starting with an intelligence test, other tests representing more varied ways of thinking are being added. The participating companies agree to test a certain number of their employees, and to furnish ratings for them in comparable terms. A central office makes the comparisons of test scores with ratings, and reports back to the companies. In this way a steady program of research is carried out, with ultimate benefit to all the firms if improvements in technique result, and no excessive cost to any one firm.

PERSONALITY TESTS

There is some possibility that the so-called personality tests will also have a contribution to make to this field. Wadsworth, in California, has been working with one such test for some time. He finds that the extreme cases of temperamental difficulty can be recognized, even though they are of different types, by the use of the Humm-Wadsworth Temperament Scale. This comprises a long series of questions which are to be answered "yes" or "no" by the applicant, with no time limit imposed. The questions relate to behavior in specific situations. "Do you usually avoid being introduced to the celebrity at a public meeting?" might be one of them. By varying the situations and the explicit form of behavior, it is possible to ask a large number of questions which presumably represent each of the various types of emotional one-sidedness. It is the composite of the answers to these questions, rather than any one of them, on which interpretations are based. Other personality tests are somewhat similar to this.

I cannot report on these tests from personal experience but believe that they hold promise of a new approach. It must be remembered that

the term "personality" is a broad one, with certain connotations for the employees and others for those who study characteristics by means of tests. At the very least, personality tests are a very good opener for an intimate type of interview. They will not take the place of intelligence tests, and tests of skill, in office work, but they are well worth experiment.

This covers fairly well the variety of tests now available, and indicates both their values and the open questions with regard to them. Nothing could be better than a reawakened interest in them, provided we realize that too much faith is not good for any child, particularly a brain-child. The benefits to be gained from tests are many, while the problems still to be solved are a challenge.

APPRENTICE WORK SCHEDULES

By O. L. HARVEY

Technical Analyst on Apprenticeship, Division of Labor Standards
United States Department of Labor

Of key importance in an apprentice training program is a systematic schedule of the processes to be taught. In this third of a series of articles on apprenticeship by members of the staff of the Federal Committee on Apprenticeship, the author discusses the drafting of apprentice work schedules and examines some of the special problems involved. To dispel the prevailing confusion as to essential training requirements, Mr. Harvey recommends the establishment of standard work schedules for each trade.

A SCHEDULE of work processes may be considered, in connection with the training of apprentices, as similar to the blueprint used in setting up a job. It comprises a listing of the various operations the apprentice is to learn on the job throughout the entire term of his apprenticeship. In its simplest outlines it is little more than a definition of the trade concerned; in its most detailed form it constitutes a thorough job analysis.

The apprentice work schedule is of fundamental importance in any plan for the training of apprentices. It represents all the difference between, on the one hand, a vague statement on the part of the employer that he will teach the apprentice his trade, and, on the other, a definite statement by the employer that he will teach the apprentice such and such specific

operations deemed essential to an all-round skilled worker in the trade concerned. Sometimes, as a matter of convenience, the agreement itself contains only a brief outline of the major processes to be taught, but in such cases it is the general practice to maintain the more detailed written description as part of the administrative records of the individual shop.

The principal value of an effective work schedule, therefore, is that it constitutes a systematic and orderly presentation of the operations to be learned through practical experience. Included as part of the agreement between employer and apprentice, it satisfies one of the chief characteristics of an equitable relationship: both the employer and the apprentice are informed concerning what will be taught, what will be learned, and how long the period of training on each specific operation or type of operation will be.

The inclusion of a work schedule in the apprenticeship agreement is something like the submission of specifications on a manufacturing contract. It implies that the employer has adequate facilities, a sufficient variety of machines and tools, the necessary supervision, and a qualified corps of instructors, to insure the apprentice a comprehensive, all-round training in his trade. The preparation of a work schedule, therefore, is in itself an inventory of the facilities which the employer can offer.

To evaluate these facilities it is necessary to know in detail what the apprentice should learn. The preparation of a work schedule, therefore, calls for both an inventory of facilities and an analysis of each trade in which apprentices are going to be employed. As a healthy antidote to any vague ideas an employer might have concerning his ability to train apprentices, the preparation of a thorough work schedule is beyond criticism.

It should not be thought, however, that a schedule of work processes commits the employer to an irrevocable program. The schedule is intended primarily as a guide. The processes may be taught in any order, to suit the convenience of the management.

It is also considered perfectly reasonable as a practice for the parties to the apprenticeship agreement to agree that out of the full term of the apprenticeship the employer may preempt a certain portion for training in special aspects of the work for which the employer is particularly well equipped, such as, for example, the heat-treating laboratory.

Five examples of machinist apprentice schedules of work processes are appended to this article. They range in degree from a simple outline to a detailed itemized list of processes.

CONSIDERATION OF SPECIAL PROBLEMS

An examination of apprentice schedules of work processes leads to the consideration of special problems, which are here presented in some detail.

Every trade should have its own schedule, but the distinction is not always made clear. Nobody questions that the schedule for apprentice patternmakers should be different from that for apprentice molders; but not every employer, on the other hand, realizes the desirability of preparing separate work schedules for machinist apprentices and toolmaker apprentices, for example. Nevertheless, as a careful job analysis will quickly show, the two are entirely separate trades with their own distinct training requirements. More careful discrimination in this connection is desirable.

It is likewise important to realize that there is no one schedule of work processes that will apply in the same trade to all plants equally. The schedule of work processes for apprentices in the same trade must necessarily be shaped to meet the needs of the individual plant. The job analysis, on which the schedule is based, must therefore have reference to the type of work done in the plant immediately concerned. Even though the schedule applicable to one plant could conceivably be adapted to another after some alteration, to adopt it as a whole and without consideration of plant setup would be clumsy and ineffectual. Every case calls for its own diagnosis. Nevertheless, it is desirable that the basic fundamentals of training should be comparable; thus all machinist apprentices should be required to learn the operation of milling machines, lathes, shapers, etc. The amount of time to be devoted to each type of machine, however, will vary from one type of plant to another, and the extent of training which apprentices are given on different machines of a given type in one plant could quite reasonably be different from that which they are given in another. However, the fundamental training program should be the same for all apprentices in the same trade. Too often, unfortunately, the employer trains apprentices not merely to become machinists, but to become machinists specifically fitted to do the specialized type of work required in his particular shop. As a result, apprentices reputedly trained in the same trade are found to have widely different backgrounds of experience.

NEED FOR BASIC SCHEDULE OF TRAINING

Obviously this problem of distinguishing between these different kinds of training schedules, all in the same trade, becomes a matter of some concern. Under existing circumstances the selection of workers tends to place more emphasis on the employer under whom training was received than on the trade for which the worker was trained. This means that there is no satisfactory agreed-upon standard for determining what a machinist, for example, should be expected to know. It suggests the desirability of coming to an agreement in determining just what should be expected of a machinist apprentice. It points to the need for some general

schedule of training which should apply to all apprentices alike in the same trade; and implies that apprentice training programs should be limited to that outline only, leaving the more specialized concentrations to be effected in a subsequent period of training. That being the case, the fundamental question would be: "How much training on each of several basic specified processes should be given to the apprentice in a given trade, before he is ready to specialize in postgraduate work on operations which will make him suitable for employment in a particular type of plant having specialized interests and requirements?"

The answer to this question—and it calls for serious consideration—would require the preparation of a schedule of work processes probably drastically different from those currently familiar today. It would need to be established on a nation-wide basis, and made available to all who wish, voluntarily, to adopt it. In all cases, however, the apprentice would presumably be eligible to be classed as a skilled worker as soon as he had completed the "standard" schedule; but he would not be ready for employment as a skilled worker in his specialized field until he had completed the postgraduate course. On completion of his basic program he would be entitled to a certificate of completion of a "standard" apprenticeship in the trade concerned, and at liberty to seek employment, in that recognized capacity, elsewhere.

Until and unless the industry as a whole is agreed on what is essential to the training of an apprentice in any given trade, and what is spurious, accidental, or specialized, the present confusion will persist. Every employer and every skilled worker should know what is and what is not essential to his trade. And every apprentice should know that, once he has learned a given "standard" series of work processes, he is eligible for a certificate of completion of apprenticeship.

SUMMARY

The schedule of work processes is one of the most important parts of any apprenticeship system. To be satisfactory it should be in written form, and agreed upon beforehand by apprentice and employer jointly. It should be detailed, and based on a careful job analysis. It should cover at least all the essential requirements of the trade. And, finally, looking to the future, it should be standardized on a more nearly national basis of understanding than prevails in industry today.

APPENDIX

EXAMPLES OF WORK SCHEDULES FOR MACHINIST APPRENTICES

Company A (6,300 hours)

The term is divided into one period of 700 hours and seven periods of 800 hours each. Approximately 600 hours of the 6,300-hour term shall be devoted to classroom instruction and lectures in related technical trade subjects.

Consistent with the conditions of business and the ability of the apprentice, the following shop experience will be given the apprentice, but not necessarily in the order given:

Lathe
Drill Press
General Milling Operations
Heavy-duty Milling and Drilling
Shaper Operations
General Grinding Operations
Bench Work
Gear Job Operations

Company B (8,000 hours)

Hours	
1,000	Lapping centers, tool errands, crib boy
500	Shaper work and miscellaneous
1,500	Lathes and drills
1,500	Milling machines
500	Grinding machines
2,500	Bench work (jigs, fixtures, gages, dies, etc.)
500	Tool hardening

Company C (48 months)

Months	
4	Drilling Department 2 mos.....4-spindle sensitive drill, using jigs 2 mos.....radial drills
2	Tool Crib 1 mo.....delivery 1 mo.....grinding and milling tools
2	Collet and Small Tool Assembly Department
4	Milling Department 1⅓ mos.....vertical mill 1⅓ mos.....horizontal mill 1⅓ mos.....duplex mill
8	Turret Lathe Department 4 mos.....ram type 3 mos.....bar work 1 mo. .....small chucking work 4 mos.....saddle type 2 mos.....heavy bar work 2 mos.....large chucking work
4	Grinding and Engine Lathe Department 2-2½ mos.....grinding machines 1½-2 mos.....engine lathes

Company C (cont'd)

Months	
4	Planer and Boring Mill Department
4	Toolroom (making tools)
10	Assembly Department (assembling turret lathes)
1	Heat Treating Department
5	Auxiliary work (including: shop tool design, estimating, special tool design, drafting room, time study, laboratory, sales, orders, advertising)

Company D (48 months)

Months	
6	Work in toolroom, learning names of tools, use, care and maintenance; operate drill grinder; learn how to sharpen tools; work with handling of material in shop, learning shop routine system, orders, etc.; work on saw & bolt cutter, learning operation and proper methods of performing jobs; work on drill press, learning operation, methods of setting up; perform simple jobs.
6	Work on keyseater and keymiller, learning operation and performing various classes of jobs; work on small lathe, learning operation and performing jobs including tapers, chasing threads, boring, etc.
6	Work with valve-repair group, dismantle and assemble. Learn operation of electric overhead crane; simple benchwork cutting, filing, scraping, etc.; work on drill press, performing all classes of work.
6	Work on shaper, learning operation, use of cutting tools; setup, gang jobs, fixtures, etc.; work on milling machine, gear cutter, learn operation, use of cutting tools, spiral cutting, bevel gears, etc.; work on babbitting operations, learning melting temperatures, methods of pouring, etc.
6	Work on large lathes, operation, use of cutting tools, setup, thread cutting, fits, irregular jobs, templets, fixtures, etc.; work on turret lathe, learn all operations, use of cutting tools, setup, economical application of this machine to repair work, etc.; simple fitter operations, dismantling and assembling, fitting keys, etc.
6	Work on vertical boring mill, learn operation, use of tools, simultaneous cutting, etc.; work on horizontal boring mill, learn operation, application of tools & boring bars, and various jobs performed on this machine; perform additional fitter work, including operation of hydraulic press and salvage of worn parts.
6	Work on planer, small and large; learn operations and methods of setting up and performing operations on typical jobs; work with layer-out to learn fundamentals of laying out.
6	General machinist work; making & heat-treating of tools, special tools, fitter work in field; work on operations previously performed.

Company E (4 years)

First Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Tool Crib	140 hrs.				140 hrs.
Burring & Filing	140 hrs.				140 hrs.
Milling Machines		280 hrs.			280 hrs.
Drilling & Tapping	140 hrs.	140 hrs.			280 hrs.
Broaching			140 hrs.		140 hrs.
Straightening			140 hrs.		140 hrs.
Lathes—rough			140 hrs.	140 hrs.	280 hrs.
Lathes—finish				280 hrs.	280 hrs.
	420 hrs.	420 hrs.	420 hrs.	420 hrs.	1,680 hrs.

Company E (cont'd)

Second Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Milling	140 hrs.				140 hrs.
Lathes Lo-Swing	140 hrs.	280 hrs.			420 hrs.
Spline Hobbing		140 hrs.	280 hrs.		420 hrs.
Broaching	140 hrs.				140 hrs.
Grinding—External			140 hrs.	140 hrs.	280 hrs.
Grinding—Internal				280 hrs.	280 hrs.
	420 hrs.	420 hrs.	420 hrs.	420 hrs.	1,680 hrs.

Third Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Turret Lathes	280 hrs.	140 hrs.	140 hrs.		560 hrs.
Automatic Screw machines			140 hrs.	280 hrs.	420 hrs.
Grinder—External	140 hrs.	140 hrs.			280 hrs.
Grinder—Internal		140 hrs.	140 hrs.		280 hrs.
Grinder—Centerless				140 hrs.	140 hrs.
	420 hrs.	420 hrs.	420 hrs.	420 hrs.	1,680 hrs.

Fourth Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Potter & Johnson—Operation & Setup	420 hrs.	140 hrs.			560 hrs.
Boring Mills		280 hrs.	280 hrs.	140 hrs.	700 hrs.
Bullard Multimatics			140 hrs.	280 hrs.	420 hrs.
	420 hrs.	420 hrs.	420 hrs.	420 hrs.	1,680 hrs.

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"TRAINING WITHIN INDUSTRY" BULLETINS

One of the activities of the "Training within Industry" division of the Advisory Commission to the Council of National Defense that is effectively expediting the defense training program is the distribution of a series of bulletins on the "how" of industrial training. These bulletins are designed for practical application in actual working situations; they are specific, detailed and calculated to be helpful to plant and personnel executives. Companies wishing to receive these bulletins directly may obtain them from the District Representatives of the "Training Within Industry" division of the Advisory Commission to the Council of National Defense. In areas where District Representatives have not yet been designated, the bulletins may be secured from the Washington office of the Council of National Defense.

The bulletins are issued under the following headings: The Training Within Industry Program; Upgrading Within Industry; Expediting Production Through Training; How to Prepare Instructors to Give Intensive Instruction; Expediting the Training of Skilled Tradesmen; Strengthening the Managerial Organization; Expanding the Managerial Organization; Improving Supervision; and Helping the Experienced Worker to "Break In" a New Man.

The District Representatives of the "Training Within Industry" division appointed up to the middle of January are:

Headquarters	*District*	*District Representative*
1. Boston	Upper New England (Maine, Mass., N. H., and Vt.)	Clarence G. McDavitt 212 Mill Street Newtonville, Mass.
2. Hartford	Lower New England (Conn., and R. I.)	Ernest A. Stowell Underwood-Elliott-Fisher Company 555 Capitol Avenue Hartford, Connecticut
3. Rochester	Upper New York State	
4. New York City	Greater New York City	
5. Newark	New Jersey	
6. Philadelphia	Eastern Penna. and Delaware	
7. Baltimore	Maryland	
8. Richmond	Virginia, N. and S. Carolina	
9. Atlanta	South Eastern States	J. E. McDaniel Georgia School of Technology Atlanta, Georgia
10. Cincinnati	Ohio Valley	Paul Mooney 35 East Seventh Street Cincinnati, Ohio
11. Pittsburgh	Western Penna. and North West Virginia	C. S. Coler Carnegie Institute of Technology Pittsburgh, Pa.
12. Cleveland	Northern Ohio	Oscar Grothe White Sewing Machine Company Cleveland, Ohio
13. Detroit	Michigan and No. Ohio	M. M. Olander Owens-Illinois Glass Company Toledo, Ohio
14. Indianapolis	Indiana	C. R. Evans 148 East Market Street Indianapolis, Indiana
15. Chicago	Greater Chicago and Illinois	Paul A. Mertz Room 414, Merchandise Mart Chicago, Illinois
16. Minneapolis	North Central States	Ernest L. Olrich Room 266, Capitol Bldg. St. Paul, Minnesota (718 Glenwood Avenue, Minneapolis)
17. St. Louis	Mo., Ark., Okla., and Kansas	

Headquarters	*District*	*District Representative*
18. Houston	Texas and Louisiana	R. W. Markey, Acting Representative, Hughes Tool Company Houston, Texas
19. Pueblo	Colorado and Wyoming	George Kirk Colorado Fuel & Iron Co. Pueblo, Colorado
20. Los Angeles	S. Calif., Arizona and N. Mexico	William K. Hopkins 1443 Federal Building 310 N. Spring Street Los Angeles, California
21. San Francisco	N. Calif., Nevada and Utah	Alexander R. Heron Crown-Zellerbach Corp. San Francisco, California
22. Seattle	Pacific Northwest	

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ACTIVITIES OF LOCAL INDUSTRIAL RELATIONS ASSOCIATIONS

Note: Valuable work in forwarding progress in the field of industrial relations and personnel administration is being performed by local associations of personnel executives and by colleges sponsoring study in this field. For the interest of PERSONNEL *readers who wish to obtain some idea of the scope of this local and special activity there follow reports from various organizations representing important regional centers in nearly all sections of the United States:*

Pittsburgh

The Pittsburgh Personnel Association reports through its secretary, John D. Beatty, that the personnel men in that city are busy now with the very considerable task of finding and training some 15,000 men to meet the demands of national defense in the Pittsburgh area. The president of the association, H. K. Breckenridge, has appointed committees to work on the local needs for employment, training, health and safety, employee security, personnel records, industrial relations, and community relations. The association has carried on an active meeting program, and among the speakers in the last few months were Harold F. North, Manager of Industrial Relations, Swift & Company, and Russell T. Greenly, Professor of Trade and Industrial Education, Purdue University.

Mr. Beatty is Secretary for Region 11 (comprising western Pennsylvania and West Virginia) for Engineering Defense Training. Under the direction of the Carnegie Institute of Technology, The Pennsylvania State College, The University of Pittsburgh, the University of West Virginia, Grove City College, and Bucknell University, nearly 12,000 individuals will be given intensive training in evening classes for a six-months' period. Mr. Beatty states that 6,150 applications were received for these courses in the Pittsburgh district, and it is estimated nearly 4,000 applicants will be enrolled. The purpose of

the Engineering Defense Training program was primarily to assist in up-grading industrial employees. The Pittsburgh Personnel Association cooperated with Mr. C. S. Coler, Regional Director of the National Defense Advisory Commission in arranging an all-day program in the interest of defense training, held in the latter part of January. Some of the subjects discussed were: plant personnel needs, sources of personnel, job training, apprentice training, foreman training.

Chicago

Indicative of the growing interest in personnel work is the report received from the Industrial Relations Association of Chicago, which stated in part: "Only a few years ago, if a group of 30 or 35 personnel men and women came out to a dinner meeting, this was considered a good turnout. Today, with no greater use of headline speakers or other inducements, the average attendance is close to 200, and has been as high as 230. The growth is due to a number of factors: (1) More companies in the area have industiral relations or personnel managers and departments than ever before; (2) This in turn has created a group of men so new to personnel procedures that they depend on the meetings for guidance to a greater extent than the seasoned men; (3) We have had aggressive membership committees at work; (4) Top executives of small companies lacking a personnel department have shown interest in our meetings; and (5) Admittedly, the food is good and the surroundings congenial."

More than 350 personnel executives from 115 companies in the Chicago area attended the annual meeting that was held at the University of Chicago in November. The report was made by William M. Edens, Second Vice President of the Continental Illinois National Bank and Trust Company, member of the executive committee, who is now serving as Acting Secretary since the retirement of F. C. W. Parker. Mr. Parker, well-known to hundreds of business men in Chicago and throughout the United States, as well as in many foreign countries, retired as Secretary of the Association last month. Mr. Edens also reported that the President of the Chicago Association, Paul A. Mertz, Director of Training, Sears, Roebuck and Company, has been drafted as District Representative for the Advisory Commission to the Council of National Defense in the "Training Within Industry" activity. Mr. Mertz's district includes the very important industrial section of the country comprising Illinois, Indiana to Gary, and Wisconsin to Milwaukee.

The Association is at present sponsoring three study and research groups: One committee collects and disseminates information on company problems on any questions submitted to the executive committee; another is carrying on practical experimentation in the field of employment stabilization; and the third, limited to members engaged directly in training activities, is compiling information on a supervisory training program.

"About a dozen of the training men of major industries of the area who are members of our Association," Mr. Eden states, "will serve on a panel to visit and assist industries on request for individual assistance. Other industrial training men from the Milwaukee, Gary and Indiana Harbor areas are also serving. In this way the Association hopes to help industry to help itself in its new and urgent problems due to increased production, and coordinate with the educational agencies of city, state and federal government for such training as can better be done outside the plant. Many member firms also have defense contracts which will require major service for defense for personnel men in their own plants.

"We believe in Chicago that the 'Training Within Industry' program offers an unusual opportunity to sell industry on industrial relations programs as never before possible."

Stanley P. Farwell, President of the Business Research Corporation, reports that the Chicago Association of Commerce has sponsored the organization of a Council on Training of Defense Workers. The Council is part of a program being carried out by the Association's Committee on Education. The objectives of the Council are:

1. To aid in every way possible in increasing the supply of skilled mechanics available for national defense requirements in the Chicago area.

2. To coordinate the training plans of the various organizations in the Chicago area interested in national defense.

3. To act as a clearinghouse for approved plans and methods of training and disseminate information regarding them.

As part of its vigorous program the Council is issuing a series of bulletins containing information that is useful to industries in their efforts to train individuals for skilled work.

Rochester

The very intensive program carried out by the Industrial Management Council of Rochester was described for the AMA by A. E. Crockett, Manager of the Council. The program is so comprehensive that we quote Mr. Crockett's statement in full for its value to other associations.

"The Industrial Management Council of Rochester serves as the clearinghouse on most problems for industrial Rochester. It operates largely through groups, and committees of groups, starting with General Managers and moving along the line to a group of Stenographic Supervisors.

"Statistics, largely an exchange of information for the benefit of management, can be standard service, or the fruit of telephoning in response to inquiries on the part of managers wanting to know what the others are doing, or intend to do.

"Like many other organizations employment, hours, average earnings are made known to the I.M.C. Cost of living in the city has been tabulated for many years. First aid and accident statistics, compiled on a monthly basis, are also compiled by the I.M.C. over many years.

"Here are the groups through which the Industrial Management Council operates, with and for Rochester Industry:

"1. The Executive Committee, on call.

"2. Employment and Personnel Managers, meets Thursday noons, weekly average attendance 28. Occasional night meetings. This active group has among its committees the following: Training Committee, and several subcommittees on training; Welfare Committee, Information to Employees, Semi-Annual Survey Committee, Labor Relations Committee, Committee on Noonday Speakers, Social Security Committee, Committee on Seniority, Vacation for Hourly Workers, Hospitalization, Committee on Cooperation with State Employment Service, Committee on Junior Achievement, Legislative Industrial Inquiry Committee, Committee on N.A.M. Mobilization for Understanding of Private Enterprise.

"3. Superintendents and Production Managers, active steering committee meets Friday noons, weekly average attendance of 20 men. Its fortnightly evening meetings are addressed on mechanical, production material and process problems, with liberal discussion period.

"4. Industrial Safety executives meet fortnightly to keep one another up to date on safety practice. One committee attacks the dust problem as to prevention, research, legislation. Another attacks the problem of fumes and gases. This group cooperates

in the annual safety campaign of Associated Industries of New York State. It studies and closely follows proposed legislation on Workmen's Compensation.

"5. Office Managers meet to exchange views, data and experience, compare their respective organizations, policies and practices, and learn latest methods of office efficiency and economy.

"6. Stenographic Supervisors of centralized stenographic departments meet monthly to discuss their problems, exchange experiences and advice, and keep up to date on modern equipment and practice.

"7. Statistical men in I.M.C. forms who discuss statistical methods and advise I.M.C. staff on its statistical work.

"8. Foremen conduct foremen dinner meetings.

"9. Discussion Group meets evenings to keep up to date on the shifting situation as to labor, especially from a state and national viewpoint, with the local picture not forgotten.

"10. Industrial Standards Group created to give these engineers a 'means of interchange of methods and usages,' looking to the efficient specification of Standard items. This group meets monthly from October through June.

"11. Time and Motion Study Engineers meet fortnightly to hear specialists on this subject and to discuss its various phases and problems."

Philadelphia

Among the new developments at the Philadelphia Industrial Relations Association has been the organization of a Committee to study the techniques of collective bargaining, which is working under the direction of Dale Purves, Treasurer and Production Manager of the John B. Stetson Company. Wallace Gill, Vice President of the Association, also reports that a committee under the chairmanship of Waldo Fisher, Professor of Industrial Relations at the University of Pennsylvania has completed its study of problems in applying seniority in layoffs, rehiring and promotions. "Because of the growing concern of workers, unions, and management with the place that should be given to seniority in employment and promotions," Mr. Gill says, "the Association in 1938 appointed a committee to study this problem and to make a report to the membership. A statement of the findings and recommendations of the committee of 16 members will be forwarded to the membership sometime in March.

"Few of the many perplexing problems which face the personnel executive today have occasioned as much controversy as the application of seniority to layoffs, rehirings, and particularly promotions. For that reason, it seemed advisable to devote a meeting to a discussion of the more fundamental aspects of this problem. The Executive Committee has therefore arranged for a panel discussion for this report."

The panel for this meeting will be: Waldo E. Fisher, (Chairman), University of Pennsylvania; Alfred Hoffmann, American Federation of Hosiery Workers; William H. Winans, Union Carbide Company; Thomas G. Collins, General Electric Company; Henry R. Harris, Atlantic Refining Company; Fred A. Krafft, American Viscose Corporation; James L. Lovitt, Philadelphia Transportation Company.

Also at work at the present time are the following two committees: (1) Under the chairmanship of Dr. C. D. Leatherman, a member of the faculty of Drexel Institute of Technology, a committee is studying the problem of Promotion and Transfer Policies. It is expected this committee will report to the Association during the current year. (2) Mr. Randolph Driver, of The Atlantic Refining Company, is heading another committee on Psychological Methods.

Evansville

Some of the recent activities of the Evansville Manufacturers' and Employers' Association included a drive to fingerprint all industrial employees in that area. The project is being carried out with the cooperation of the Evansville Police Department. The Association is also requesting plant layouts of gas and water mains and electric lines to be furnished to the Police Department as a defense measure and as a sabotage preventative. The Association's Secretary, Norman L. Kniese, writes: "Our local group is very interested in the Indiana Personnel Association and are busy in arranging for a spring meeting at Purdue University of a two-day session of personnel men throughout the state. We are arranging in conjunction with this meeting a third-day session with the cooperation of the Foremen's Clubs throughout Indiana.

"We are still working with the Evansville College on their evening school program. This activity is going into the second semester, and from the results of the first semester it has proven an unusual success. We likewise are working with our Evansville public schools on the defense program and assisting wherever possible to set up additional training classes for this purpose."

Los Angeles

The Los Angeles Industrial Relations Association closed a successful 1940 with its final project of a survey of prevailing industrial relations regulations well under way. The survey includes those items principally faced by industrial relations men in developing policies, and will provide a quick reference on prevailing local practices.

Periodic meetings during the year were addressed by Leo Wolman of Columbia University; L. A. Appley, Socony-Vacuum Oil Company; C. R. Dooley, Director of Training Within Industry; C. S. Ching, United States Rubber Company; and others.

The 1941 program opens in February with an address scheduled by Dr. Elton Mayo, head of the Industrial Fatigue Laboratory of the Harvard Business School. Close cooperation with the Industrial Relations Section of California Institute of Technology and its co-heads, Robert D. Gray and Arthur H. Young, will continue, according to the chairman of the Association, Paul W. Bell, of the Los Angeles Times.

Memphis

The Memphis Personnel Association is entering upon its fourth year and it has had a sound and consistent growth since its inception. During its existence it has assisted in the organization and development of several personnel associations in the South, according to W. B. Dominick, President of the Association.

In planning the program for 1941, considerable emphasis will be placed on those personnel activities related to national defense. Some of the topics that will be discussed are: "Training to Meet the Needs of Industries Engaged in National Defense," "Ascertaining and Combating Subversive Activities in Industry," "Some Personnel Problems Resulting from the Selective Training and Service Act," and "The Use of Conciliation in Adjusting Disputes Between Management and Workers."

Montreal

Keen interest in local personnel affairs among Canadian executives was evidenced by the report received from the Montreal Personnel Association. This group, meeting twice a month, includes in its membership personnel executives interested in keeping abreast of developments in their field. The secretary, F. Clayton, of the Sun Life

Assurance Co. of Canada, reports the following among the organization's recent undertakings:

Unemployment Insurance: At the request of federal authorities, the Association made suggestions pertaining to the employment service which it is proposed will be operated as part of the National Unemployment Insurance Scheme. These suggestions dealt mainly with personnel.

Surveys: During the past year a special committee made an extensive survey of the wage rates paid to, and working conditions of, foremen employed in the Montreal district. This subject is receiving increasing attention locally and efforts are being made to get exchange of information on a practical basis. It is expected that the survey will be covered in a special report in an early issue of PERSONNEL.

Pre-Employment Training: A joint committee, comprising members of the Montreal Board of Trade, the Montreal chapter of the National Office Management Association, the Women's Personnel Group of the M.P.A., was set up some months ago for the purpose of contacting local business schools and colleges regarding the pre-employment training of future business men and women. To represent the business schools and colleges, the "Montreal Clerical Training Council" has been formed. It is confidently expected that the cooperation of these two bodies will result in a more effective training program being developed with the schools. It is expected that results similar to those being achieved by the Joint Committee on Tests of the National Office Management Association and the National Council of Business Education, will follow this project. The many special problems peculiar to Montreal led to this parallel but distinct effort.

Baltimore

Baltimore's Personnel Administration Association has also been centering its attention on problems arising out of national defense. C. R. Hook, Jr., Personnel Manager of the Rustless Iron & Steel Corp., and Vice President of the Association, reports that as a preliminary measure a survey of the policies of 31 Baltimore companies regarding military absences, plant protection devices, the alien situation, and employment matters, was made during the early autumn, and copies of the report were furnished to their various members. Among recent speakers at the Association's meetings has been Mr. Frank Cushman, Educational Consultant of the Trade and Industrial Service of the United States Office of Education, who discussed, "How to Develop a Practical Foremanship Training Program." Many other activities are carried on by the Association besides meetings, such as community wage surveys, etc.

Purdue University

Plans for the fifth annual meeting of the Personnel and Industrial Relations Institute of Purdue University (tentative dates, May 15 and 16) are now being made. The meeting is to be followed on May 17 by the second annual Foreman's Conference, according to the report by A. P. Johnson, Assistant Director of Personnel.

Among the recent publications issued by Purdue is the report on "Industrial Recreation," based on a survey of the recreational programs in 639 companies in 38 states. This booklet is available at 50 cents a copy through the University's Division of Physical Education for Men. The Personnel Service of Purdue through its assistant director is carrying on a research program seeking to learn the qualifications of engineering school freshmen most useful in predicting their later success. The Personnel Service is also cooperating in studies for National Research Council in the selection of civilian airplane pilots.

University of Chicago

Among the research work being done at the Business School of the University of Chicago is a case study of industrial relations in the milk distribution industry of Chicago. Assistant Professor of Industrial Relations R. W. Stone, who is making the study, believes that it will be a unique presentation of the managerial, economic and institutional aspects of a 40-year record of collective bargaining and the role of unionism in the control of prices and trade practices. Other work being done includes an analysis of the administration of discipline cases under the Railroad Adjustment Board and an analysis of seniority with special reference to railroads.

Other major projects include a study of department stores as a market for labor; the applicability of statistical method in personnel management; supervisory training and national defense; administrative aspects of employers' experience rating under the Illinois Unemployment Compensation Act; analysis of forces determining wage levels and wage differentials; recreational activities for employees in business establishments; the administration of merit rating in industry; collective bargaining in the Pacific Coast maritime trades; the United States Mediation and Conciliation Service; employment problems of the handicapped; industrial relations in Florida; union-management cooperation; labor philosophy of the Catholic Church; an analysis of employee publications.

Massachusetts Institute of Technology

W. Rupert Maclaurin, Director of the Industrial Relations Section of the Massachusetts Institute of Technology, reports that the Section has been called on increasingly for participation in various defense program activities. "We made a hurry-up study last spring for the Bureau of Labor Statistics of skilled labor shortages in the aviation and machine-tool industries," he states. "We have also been asked to act as a regional consultant for a new division of the Bureau of Labor Statistics called the Employment and Occupational Outlook Branch. This division is concerned with preventing bottlenecks where possible by making surveys in different regions of the potential labor supply in relation to the probable needs of industry. We have been asked to make studies for this division for Massachusetts and northern New England. We have also been asked to act as consultant to the Industrial Location Section of the National Resources Planning Board in Washington. This agency hopes to assist the Defense Commission and War Department in making decisions in regard to the location of new plants. The Associate Director of our Industrial Relations Section, Professor Brown, has been on leave of absence during the current academic year in order to serve as Chief Economic Adviser to the Stettinius Division of the Defense Commission.

"Student enrollment in industrial relations courses has mounted rapidly. The library of our Section has also been used increasingly by industry and the public.

"The Section has been developing the long-range aspects of its research program by making studies which it is hoped will ultimately lead to a clearer understanding of the more basic factors at work in industrial relations. A number of studies have been completed during the year and have been either sent out or are in manuscript form. One study, which is now nearing completion, concerns the movement of wages in the United States in different industries since 1929. It is hoped that an analysis of this material may enable us to interpret current wage data more effectively. Another study which is just being launched concerns the factors which have led to the location of industry in New England and the factors which have caused migration. It is thought that certain aspects of this study will be of definite value in connection with the defense program."

Princeton University

Since the outbreak of the war in Europe the Industrial Relations Section of Princeton University under the directorship of J. Douglas Brown, has been concentrating its efforts on the collection of information on industrial relations policies in a war economy and on the preparation of reports and bibliographies on problems of concern to defense industries. This work has supplemented the Section's regular functions as a special research library assisting students at Princeton and inquirers from all parts of the country, including industrial and labor executives, governmental officials, and advanced students of industrial relations.

The Section's contribution to national defense may be traced through its publications, some of which have been: "Outline of Industrial Relations Policies in Defense Industries" (June, 1940); "Problems and Policies of Industrial Relations in a War Economy" (May, 1940, with supplement November, 1940) an annotated bibliography, and "Changes in the Cost of Living and Wage Adjustments" (January, 1940) an annotated bibliography. The Section expects to revise and supplement these publications from time to time.

The Section has just issued a report on "Seniority Policies and Procedures as Developed Through Collective Bargaining," which includes material of particular concern in a time of rapid expansion of labor forces, and also a report on "Collective Bargaining in the West Coast Paper Industry." Reports in progress include those on the problems of multiple-shift operation in securing maximum production and a series of concise digests of best practice in the organization of personnel departments, employment procedures, training, wage and salary administration, and hours administration for use by executives assuming new responsibilities for such activities in expanding defense industries.

In addition to its library, clearinghouse, and research work, the Section has continued its program of annual conferences and seminars. The conference held in September, 1940, covered many aspects of the industrial relations problems in time of rapid expansion as well as the economic problems faced by industry, labor, and government in time of war. Advisory work with various governmental agencies has continued and through field work and correspondence many special problems have been taken up with particular cooperating companies and organizations. Altogether it can be said that the present emergency finds the Section working at top capacity and ready to move into three-shift operation if this were possible.

Stanford University

Paul Eliel, Director of Industrial Relations at Stanford University, says that the most important work in which the Division of Industrial Relations of the Graduate School of Business, Stanford University, is now engaged is the preparation of a comprehensive bibliography of Industrial Relations in Germany, from 1914 to date. This bibliography will be the second in a series relating to industrial relations in wartime in foreign countries, with the basic material for these bibliographies built on the incomparable collection of material in the Hoover Library on War, Revolution, and Peace which is housed at Stanford University. It is believed that the German bibliography will not only disclose the existence of an enormous wealth of material whose existence was hitherto unknown to students in this country, but in particular the very extensive data in the Hoover Library covering the period of the present regime in Germany should prove of tremendous value without regard to the outcome of the war. In addition, it is believed that the very comprehensiveness of this material may also make this publication invaluable as a general economic bibliography of Germany.

The bibliography on Industrial Relations in Wartime Great Britain, 1914-1918, was

issued under the imprint of the Stanford Press in the late fall of 1940. It comprises a book of some 250 pages.

In addition to this material, the Division has recently completed and issued a study on Military Provisions in Trade Union Agreements, and contemplates a series of other studies on trade agreements in the near future. Such studies are made possible by the fact that the Division has in its library probably the most extensive private collection of trade agreements in the country.

The library of the Division continues to expand rapidly and now contains a representative collection of government, trade union, and company material. The library catalog of the Division now contains in excess of 50,000 cards.

The Division is also effecting arrangements for its Fourth Annual Industrial Relations Conference to be held on the campus March 24-28, 1941.

University of Texas

Chester F. Lay, Professor of Accounting and Management, University of Texas, reports that the pressure of increasing industrialization and the expansion of facilities for defense, including shipyards, drydocks and airplane plants is making Texas "personnel conscious." At the second annual Personnel Conference, held at the University of Texas in Austin, in late October, there was an attendance of more than 200 corporation executives and personnel men, federal and state government department representatives, and college teachers of business management. Professor Lay comments that in that "region of great distances" it is significant to have such a large attendance. The Texas Personnel Conference is permanently organized and has now issued proceedings for 1939 and 1940, available at $2.00 from the University of Texas.

University of Michigan

John W. Riegel, Director of the Bureau of Industrial Relations, reports that a course in industrial relations devoted especially to personnel problems of importance in defense industries started in September, 1940, had a membership of 30 executives from companies in the Detroit area. The Bureau has just completed a study of executive opinion with reference to the development and selection of foremen. The report of the work is on the press and will be available within the next few weeks. "It deals specifically with the qualities sought in candidates and various measures to develop in them background knowledge, managerial skills, and desirable personality traits," Mr. Riegel reports. "This study was engaged in because we found that a number of companies about to engage in defense production viewed the limited number of their supervisors as a more serious bottleneck than the shortage of any kind of skilled labor."

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